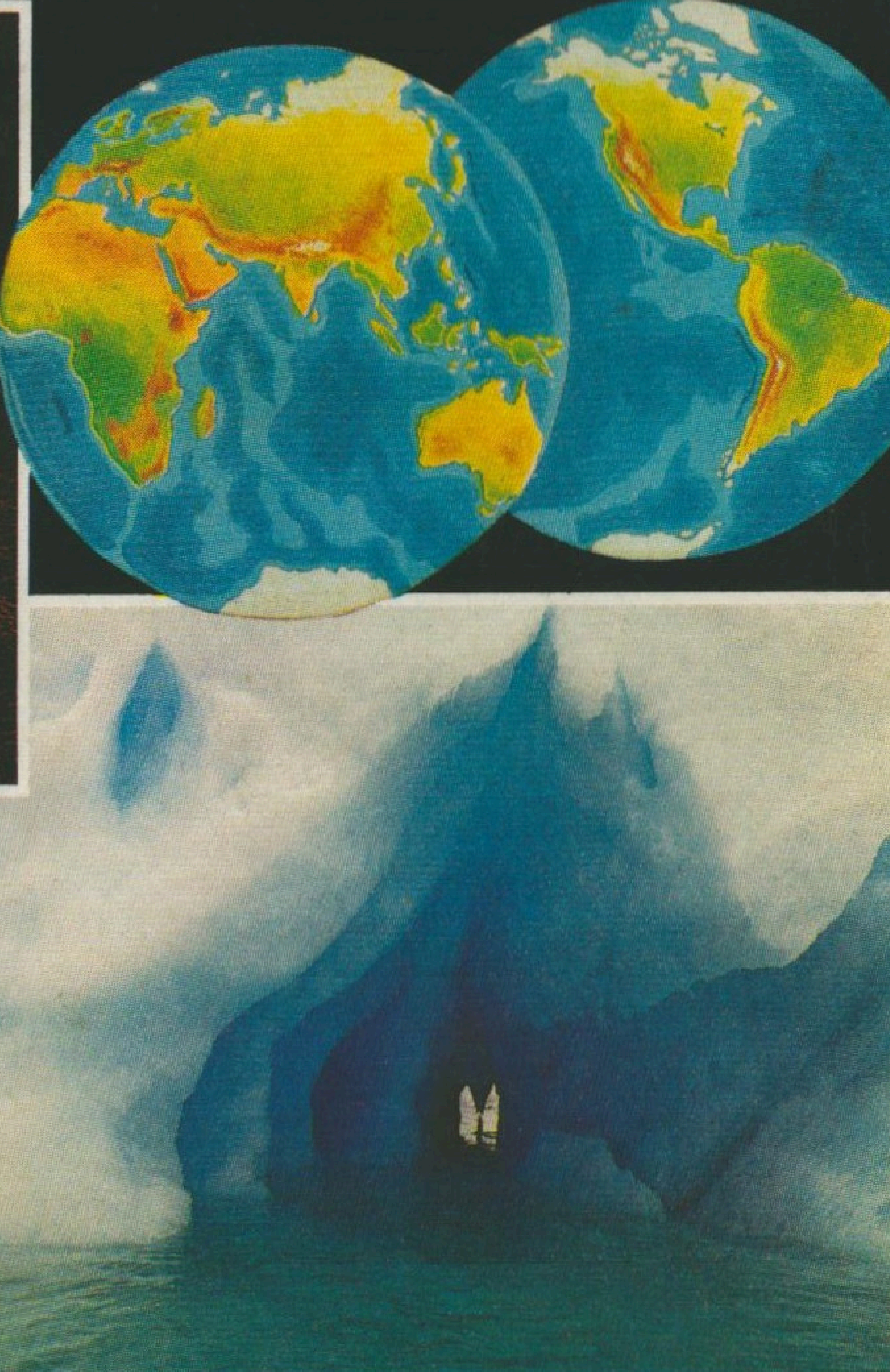
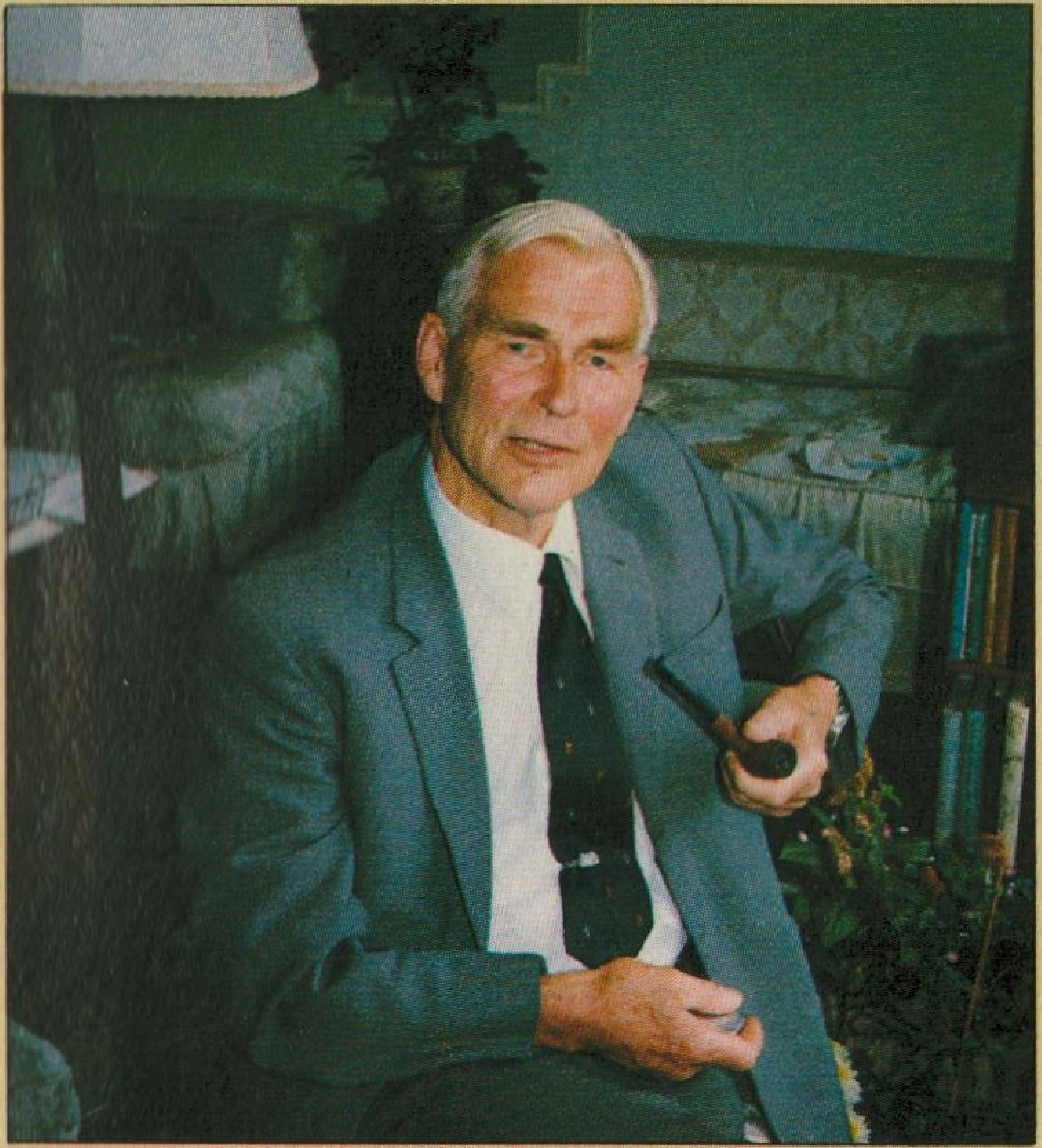
FEATURES OF THE WORLD





PG tips



Sir Vivian Fuchs was born in the Isle of Wight, educated at Brighton College and St. John's College, Cambridge. As a geologist he went to Greenland in 1929, and then took part in or led four expeditions to Africa between 1930 and 1938. During the Second World War he served in West Africa and Normandy.

From 1948 to 1950 he was Field Commander of the Falkland Islands Dependencies Survey in Antarctica. Between 1955 and 1958 he initiated and led the Commonwealth Trans-Antarctic Expedition which made the first overland crossing of the continent, and for this he was knighted. From 1959 he was Director of the British Antarctic Survey until his retirement in 1973.

"The world is full of wonders, some man-made, the great majority the work of Nature. Throughout history there have always been men with a sense of adventurous curiosity, and during the last three centuries that curiosity has been increasingly stimulated and guided by scientific advances.

Today the geographical features of the Earth's surface are known – the great mountain ranges, deserts, volcanoes, rivers and waterfalls. We even know how they came to be formed ; but that is not the end of our quest for knowledge. Today's explorers seek to discover how these features and forces, including the changes in climate, have affected and still affect all living things – particularly Man.

Think then, when you study these cards, how a volcanic explosion or the age-long advance and retreat of a polar ice-sheet affects the habitable land. Marvel, too, at the ingenuity and imagination of our forbears – Stonehenge, built of gigantic shaped stones more than 4,000 years ago; or the magnificent Taj Mahal, built only 400 years ago in memory of a great love.

Today the human race has spread across the face of the Earth and, through its works, now threatens the balance of Nature itself. To preserve our planet for the future we must learn to understand the interplay of human and natural forces.

Perhaps among this series of pictures there is one which will strike your imagination, and lead you one day to contribute to knowledge of the past and to planning for the future.

It has been said that 'We can only pay our debt to the past by putting the future in debt to ourselves'. To do this we must learn to understand the ways of Nature, and also human behaviour, so that future generations may enjoy the wonders of the world as we do today."

V. E. Fuchs

FEATURES OF THE WORLD

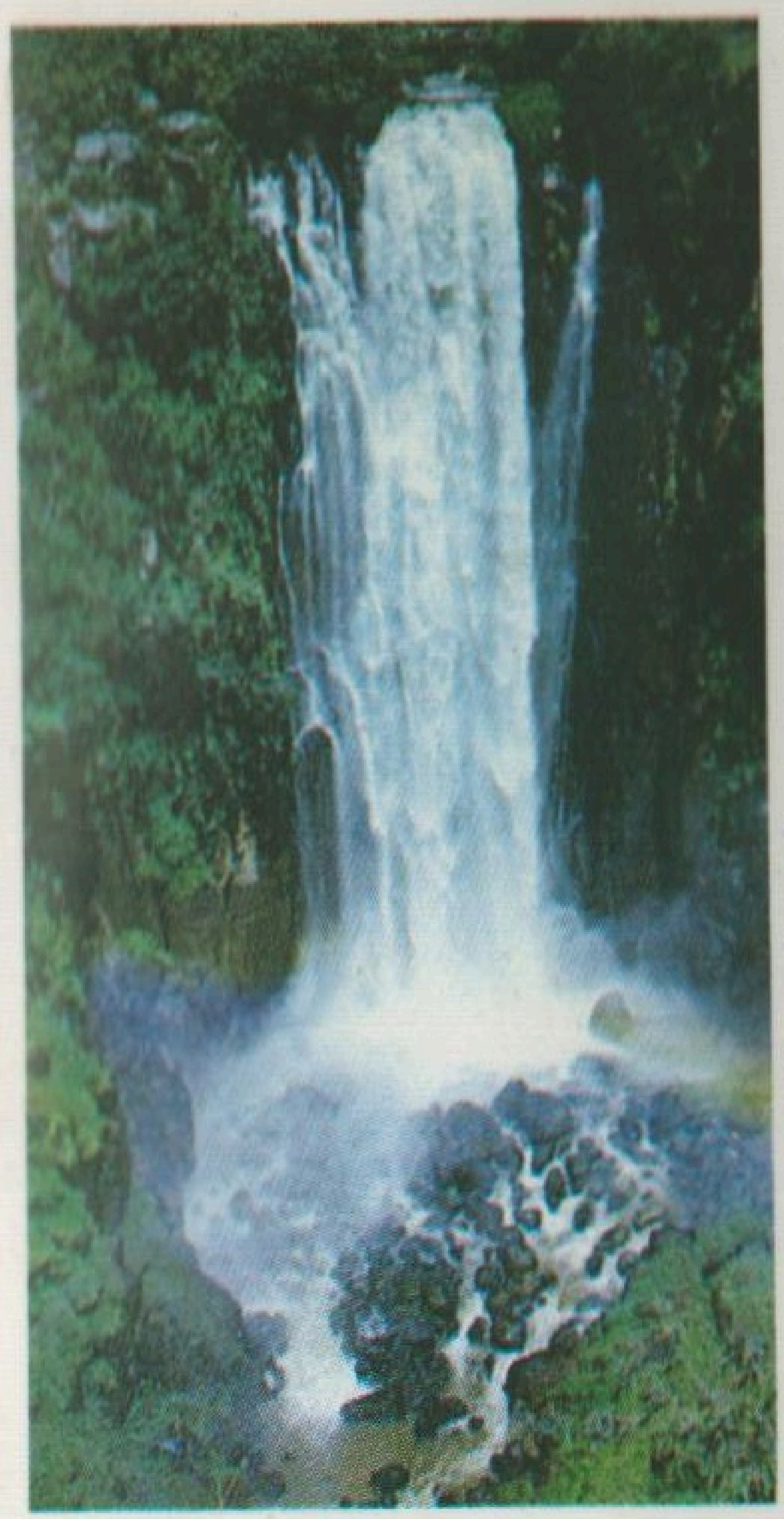


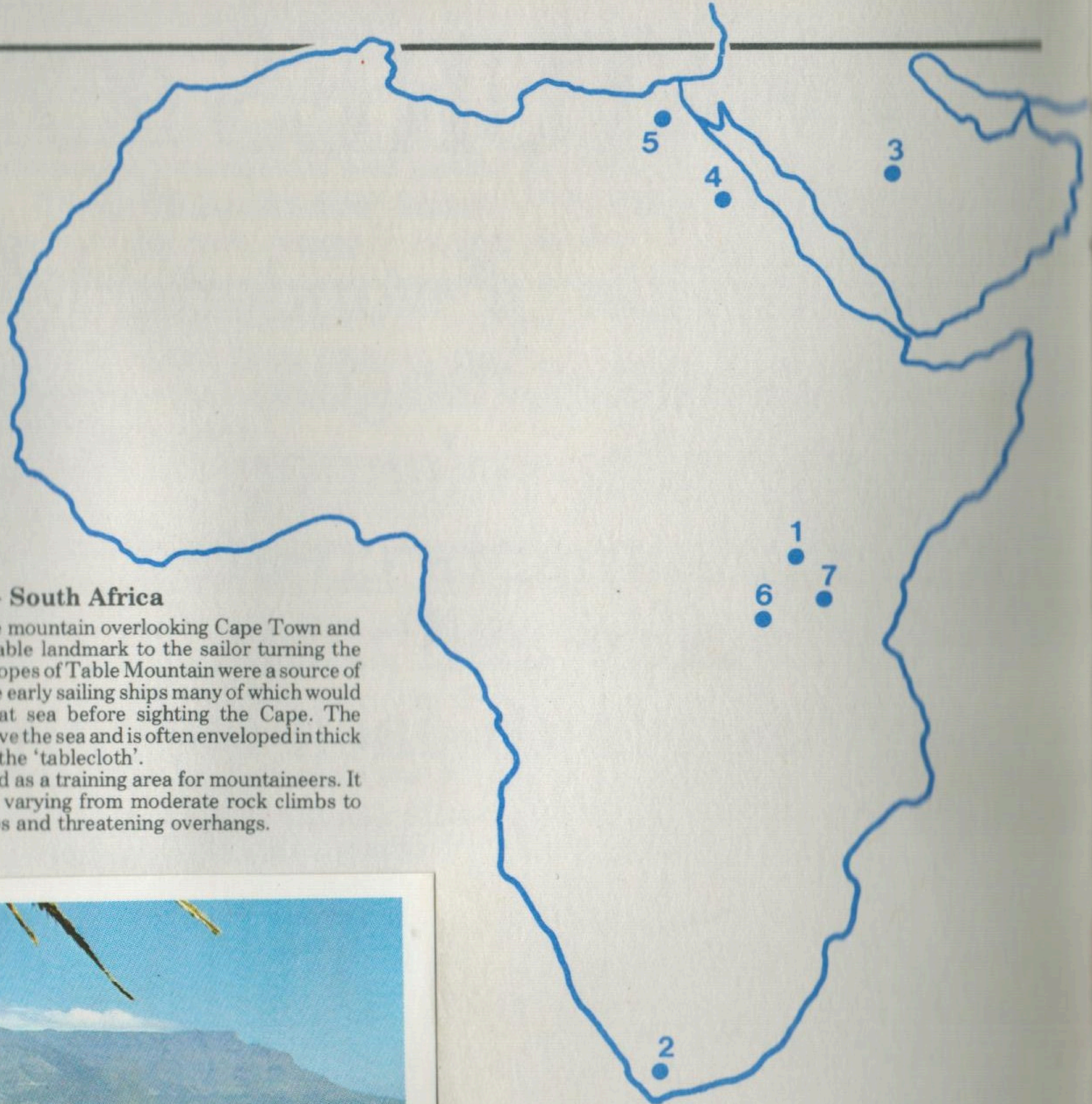
A collection of wonders; mountain ranges, waterfalls, volcanoes and monuments created by nature and man, chosen from each continent of our world.

Written by Brigadier G Hardy.

Brigadier George Hardy has selected the photographs and written the texts for this Features of the World series. He is a Fellow of the Royal Institution of Chartered Surveyors and a Fellow of the Royal Geographical Society. His military service took him to many parts of the world producing maps and charts for the armed forces. During this time he became fascinated by the geographical wonders of foreign lands, some of which are reproduced in this album.

AFRICA





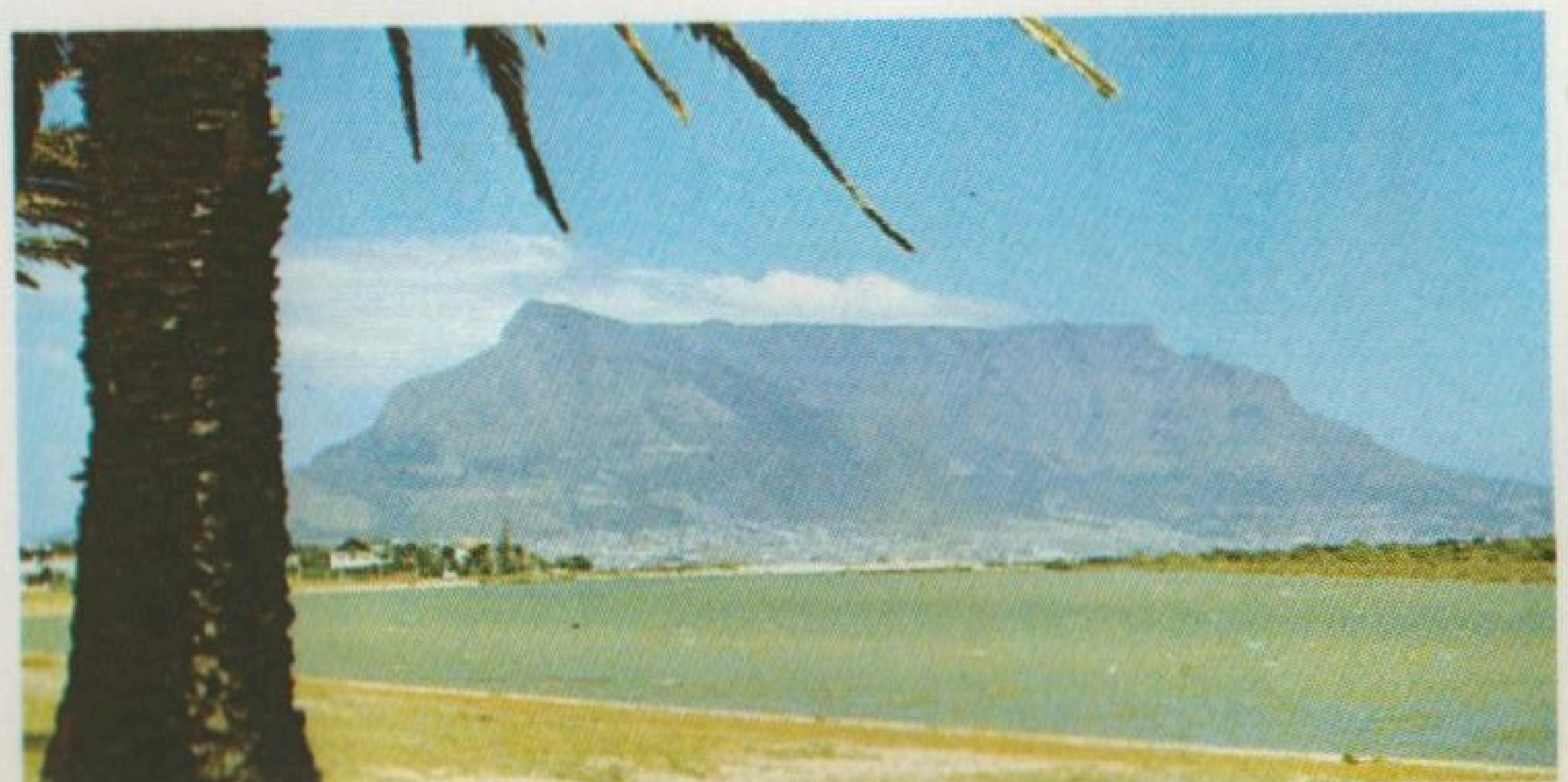
1. Thomson Falls – Kenya

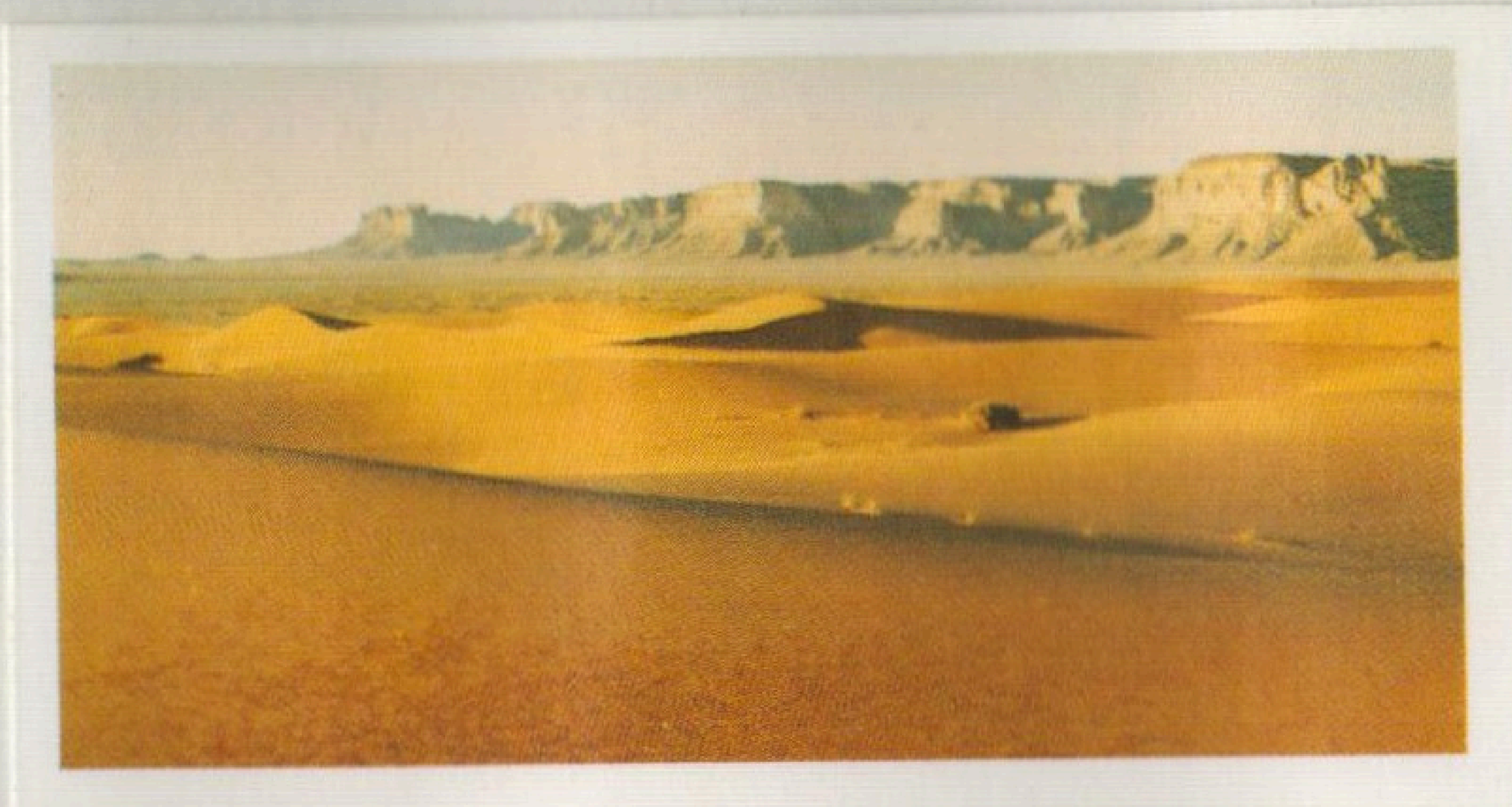
These well known falls were named after Joseph A Thomson a famous explorer during the reign of Queen Victoria. In 1883 he was commissioned to cross and explore the Kenya Highlands, a journey not previously attempted. Traversing the western slopes of the Aberdare mountains, he came across these beautiful falls on the River Ururu. In his own words he was "impressed mightily by the stupendous thundering of the waters which in magnificent mass plunged down several hundred feet without a break". The River Ururu rises in the Aberdare mountain range, 80 kilometres to the west of Mount Kenya, and after the falls flows north-east through the Uaso Narok forest.

2. Table Mountain – South Africa

This flat-topped sandstone mountain overlooking Cape Town and Table Bay is an unforgettable landmark to the sailor turning the Cape of Good Hope. The slopes of Table Mountain were a source of essential fresh water for the early sailing ships many of which would have been three months at sea before sighting the Cape. The Summit is 1089 metres above the sea and is often enveloped in thick white cloud referred to as the 'tablecloth'.

The mountain today is used as a training area for mountaineers. It has more than 400 routes varying from moderate rock climbs to really difficult vertical faces and threatening overhangs.

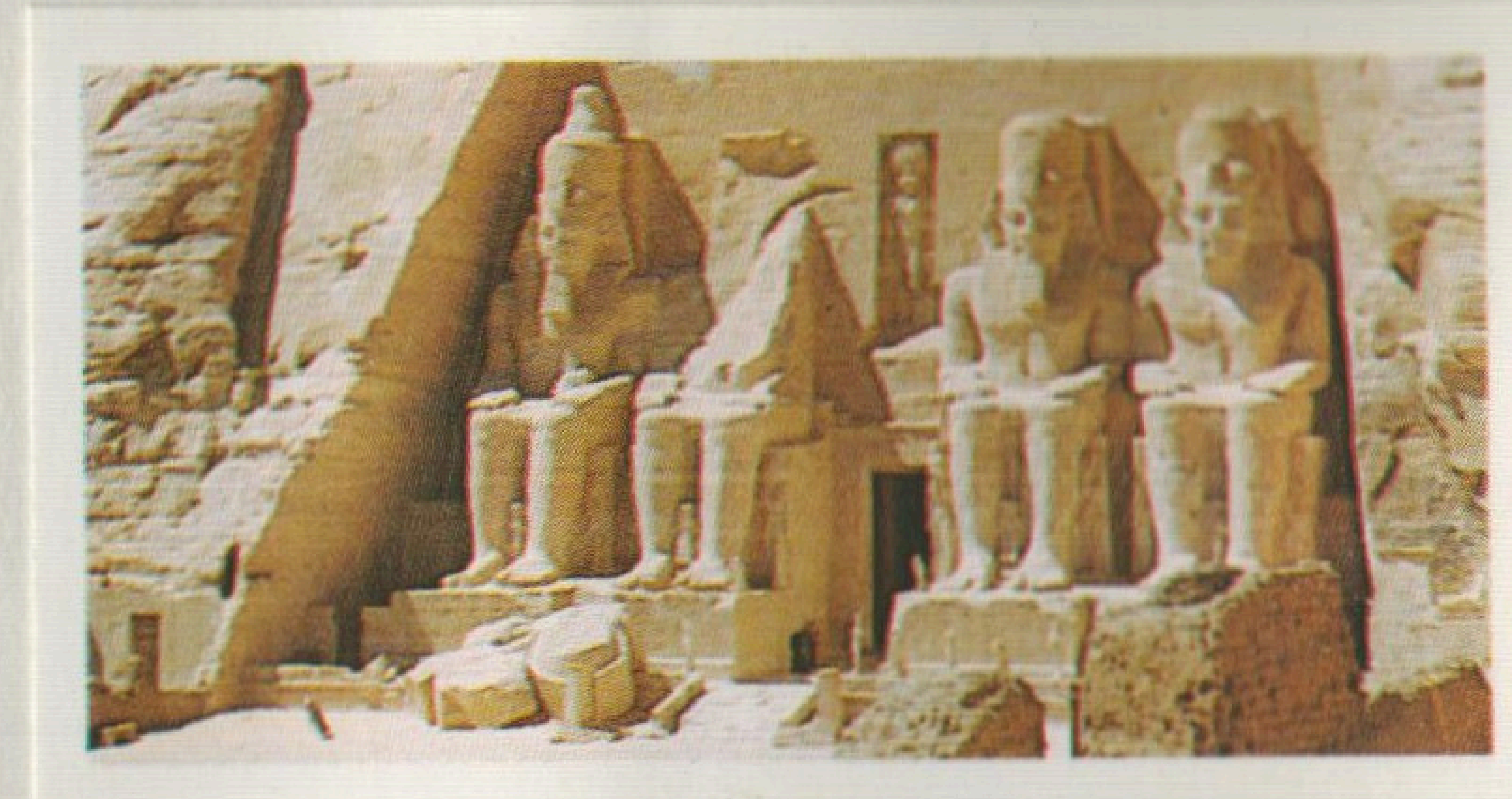




3. The Saudi Arabian Desert

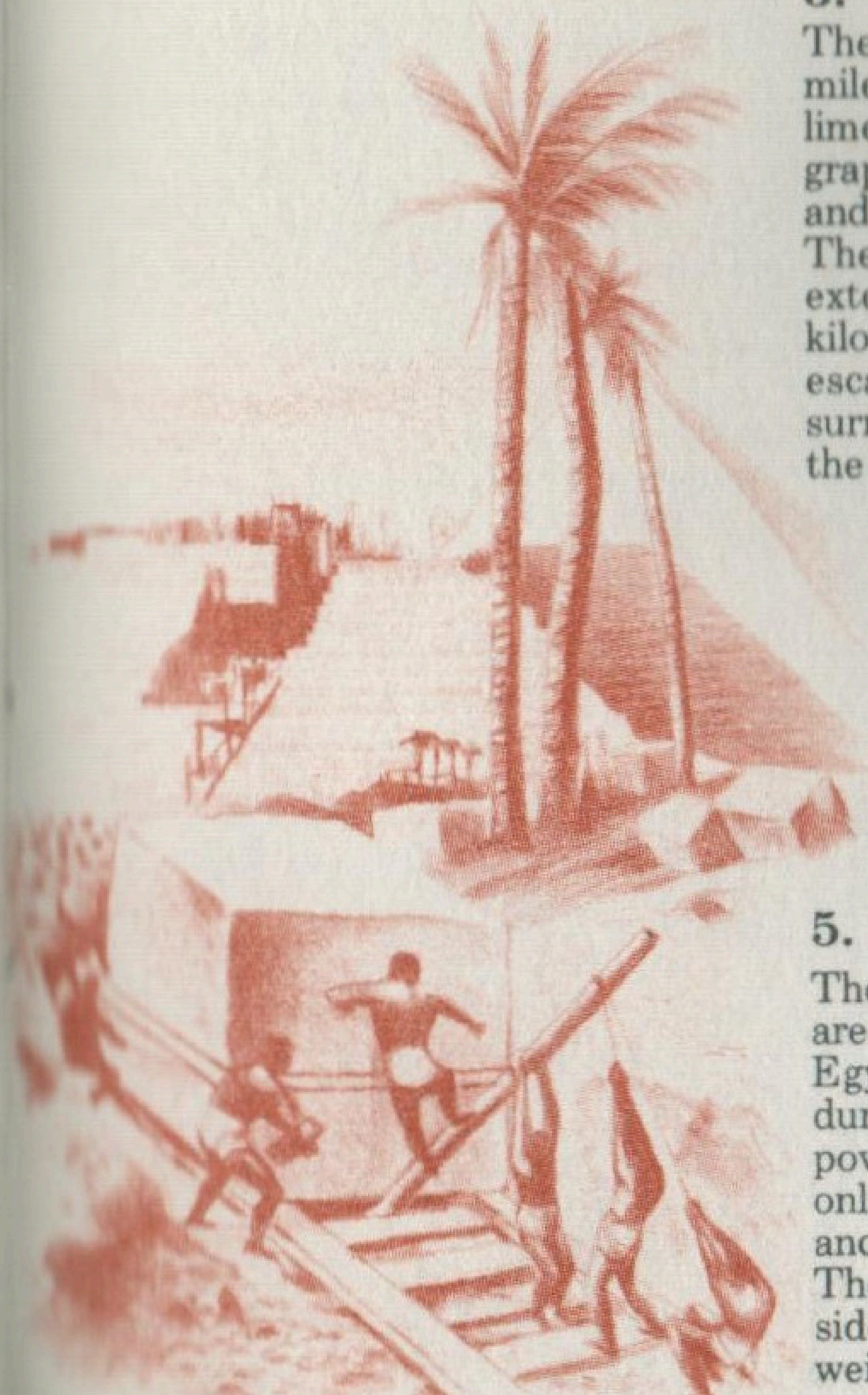
The Arabian Peninsula covers an area of more than one million square miles but only 1% of this can be cultivated. The sandy desert and limestone escarpment in this picture are typical of the Arabian topography. Much of the peninsula that is not sand or mountain is hard gravel and flinty soil.

The Tuwaiq mountains, approximately in the centre of Saudi Arabia, extend from north to south in the shape of a crescent. They are about 800 kilometres long and some 850 metres above sea level. The top of the escarpment has an average height of 245 metres above the level of the surrounding plains. The Rub Al Khali or 'Empty Quarter' which lies to the south is a bleak and inhospitable area.



4. Abu Simbel – Egypt

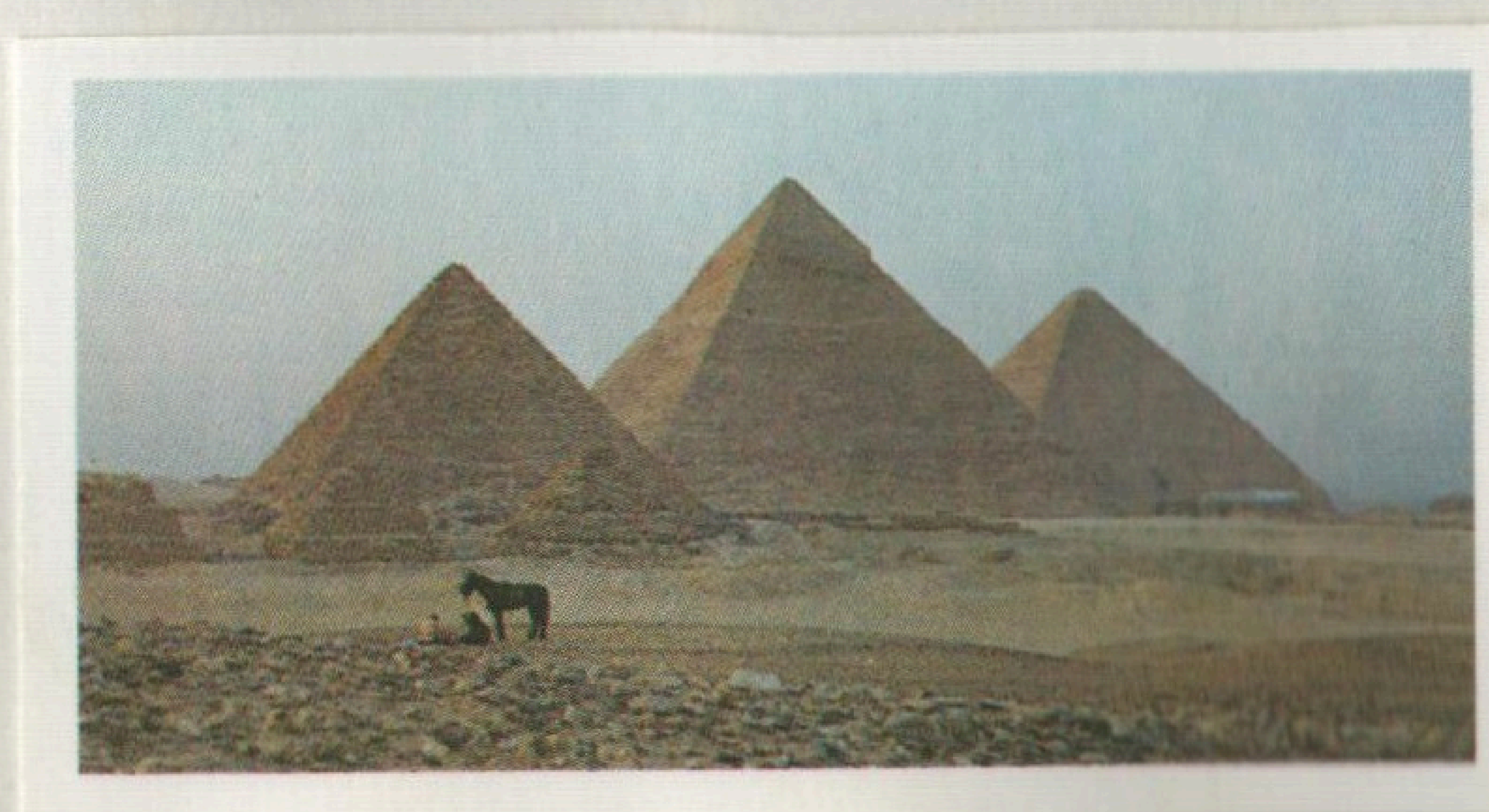
The entrance to the Great Temple at Abu Simbel was guarded by four gigantic statues built by the Pharaoh Rameses II. These were the most grandiose of the many statues and temples built during his reign from 1304 to 1237 BC. Each is over 20 metres in height and was carved deep into the sandstone cliffs. With the construction of the Aswan Dam the statues would have been submerged by the waters of the Nile. They were therefore removed piecemeal and reassembled on safe ground 60 metres above the height of the original temple.



5. The Giza Pyramids – Egypt

The Pyramids of Giza, the greatest of all buildings of the ancient world, are a lasting memorial to the intellect and religious fervour of the Egyptian civilisation around 2000 BC. The Great Pyramid was built, during the 4th dynasty, by the Pharaoh Cheops both as a symbol of his power and as a dwelling place for his immortal life after death. It is the only survivor of the seven wonders of the ancient world listed by the ancient Greeks in the 2nd century BC.

The immense size can be judged from the fact that the four triangular sides contain more than 2 million limestone blocks which on average weighed around 2½ tons each.



AFRICA

6. Ol Doinyo Lengai – Tanzania

Named by the Masai people of Africa as the 'Mountain of God' the Ol Doinyo Lengai is still an active volcano. The last eruption was in 1966. This was a massive explosion which threw a black cloud to an estimated height of 7600 metres. For three weeks the volcanic ash fell on the surrounding country changing the living green fields into a white dead landscape.

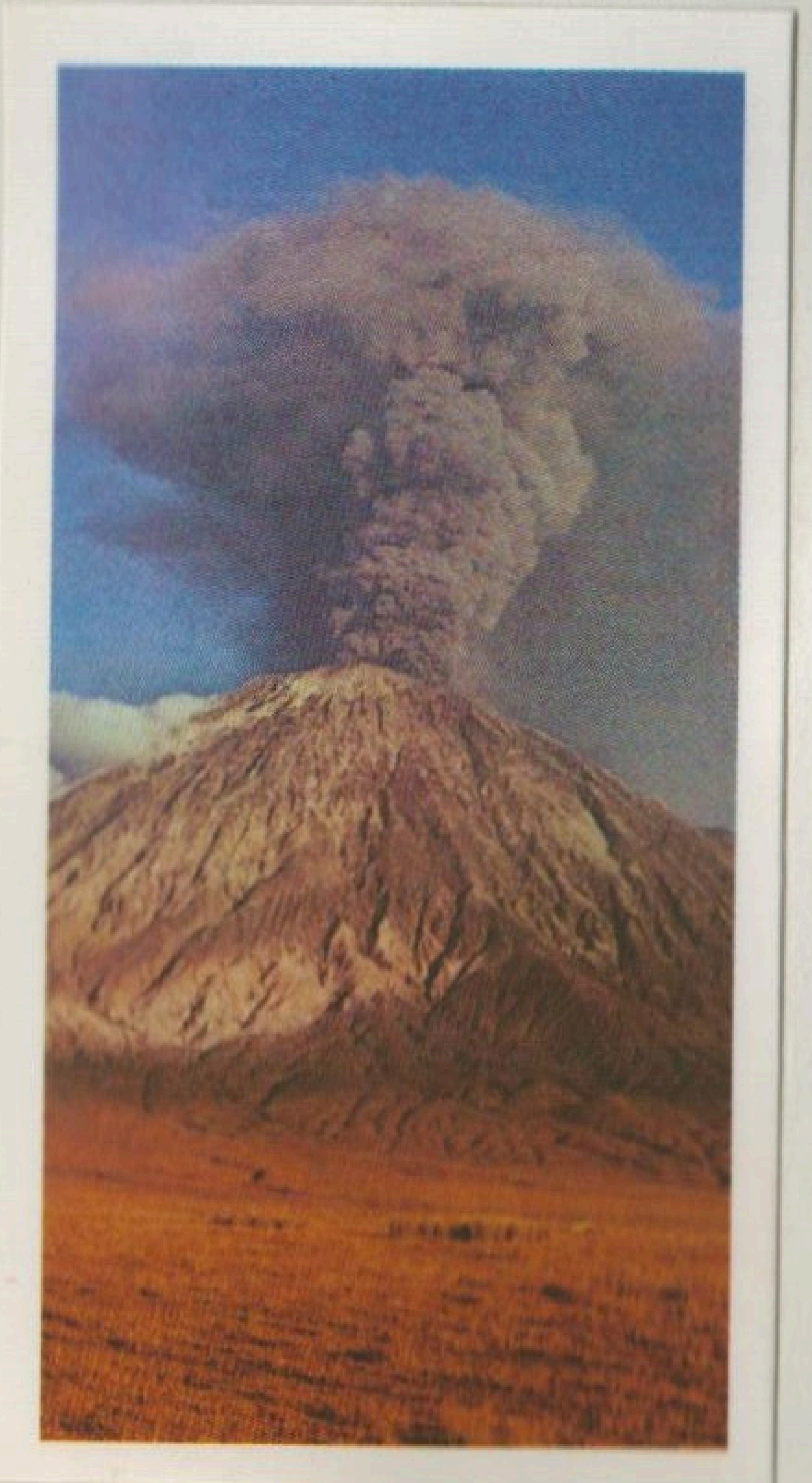
The lava from Lengai is rich in alkali. It emerges as a black substance but it is chemically unstable. Within two days of settling on the land and taking in moisture from the air the lava turns white. It has then been transformed into crystals of sodium carbonate which is ordinary washing soda.

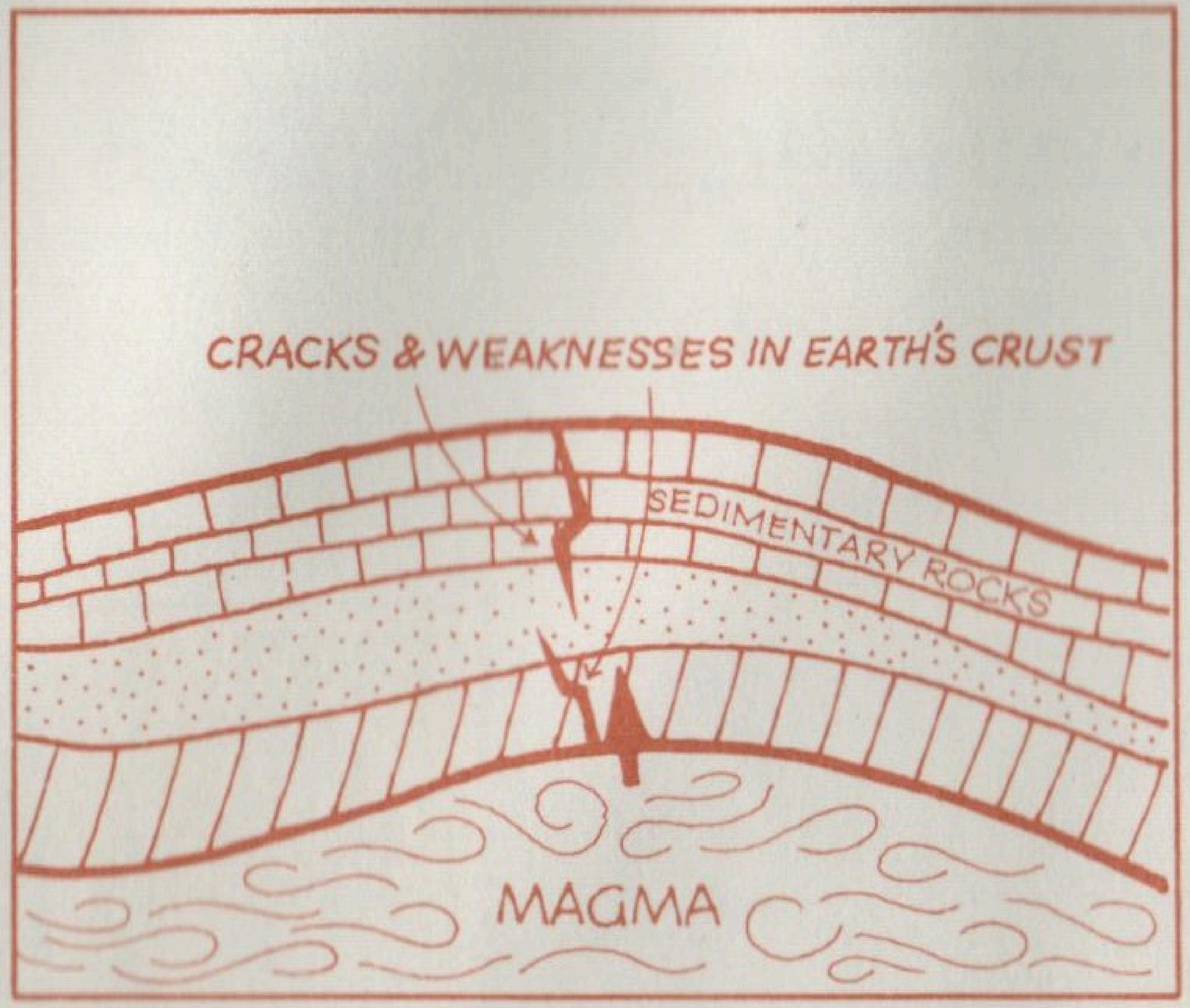


7. Kilimanjaro – Tanzania

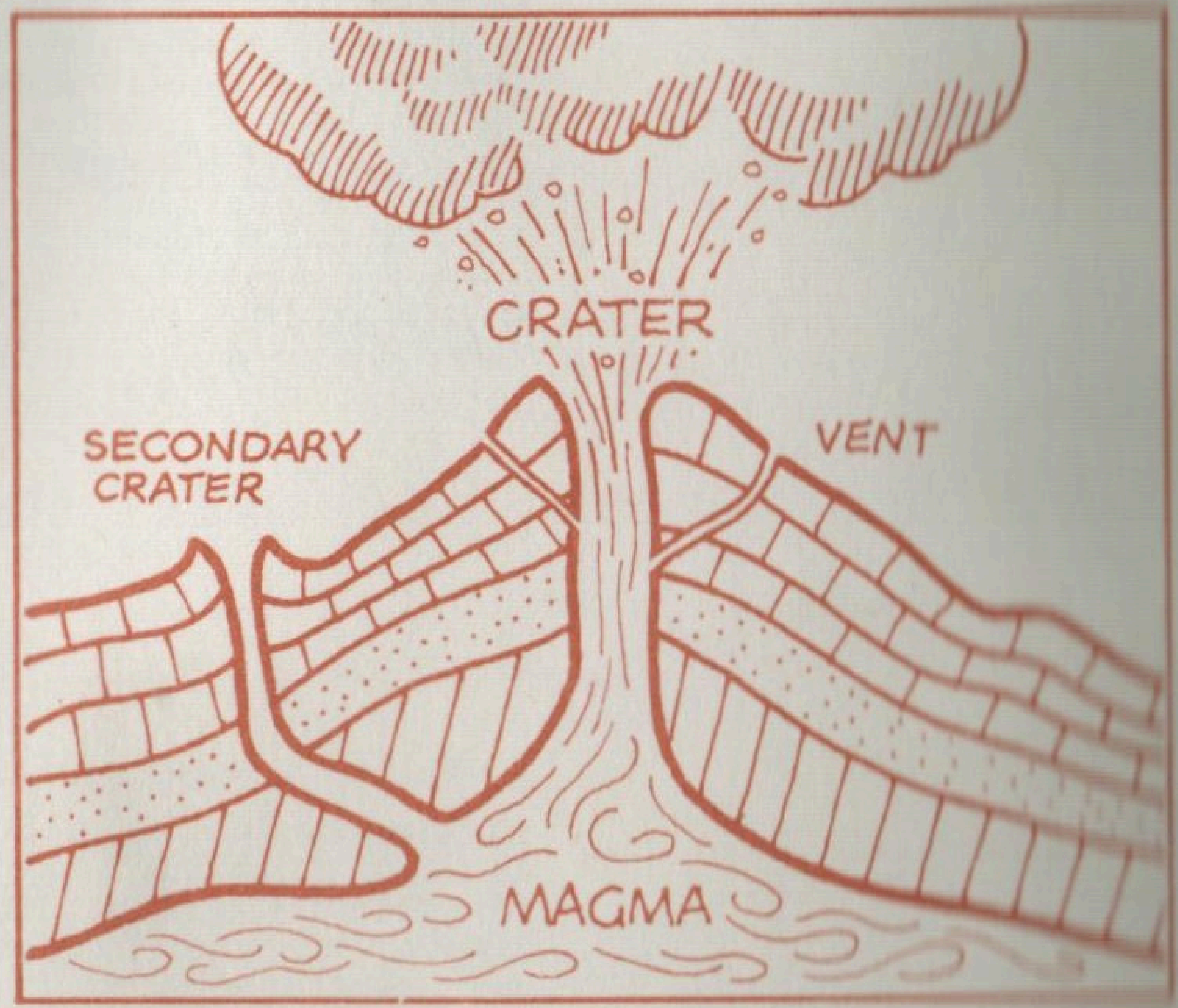
The summit of Kilimanjaro is 5895 metres above sea level. It is permanently covered in snow and ice hence its Swahili name which means 'the mountain that glitters'. It is the highest mountain in Africa and has a base of 95 kilometres by 65 kilometres.

It is in fact not one but three separate volcanoes which began to erupt at least 2 million years ago. Shira is the oldest and lowest. It collapsed inwardly, similarly to Crater Lake in the USA, (see card number 20), and is now only 3780 metres above sea level. Mawensi is 5354 metres above the sea. Kibo is the highest massif and lies centrally between the two.

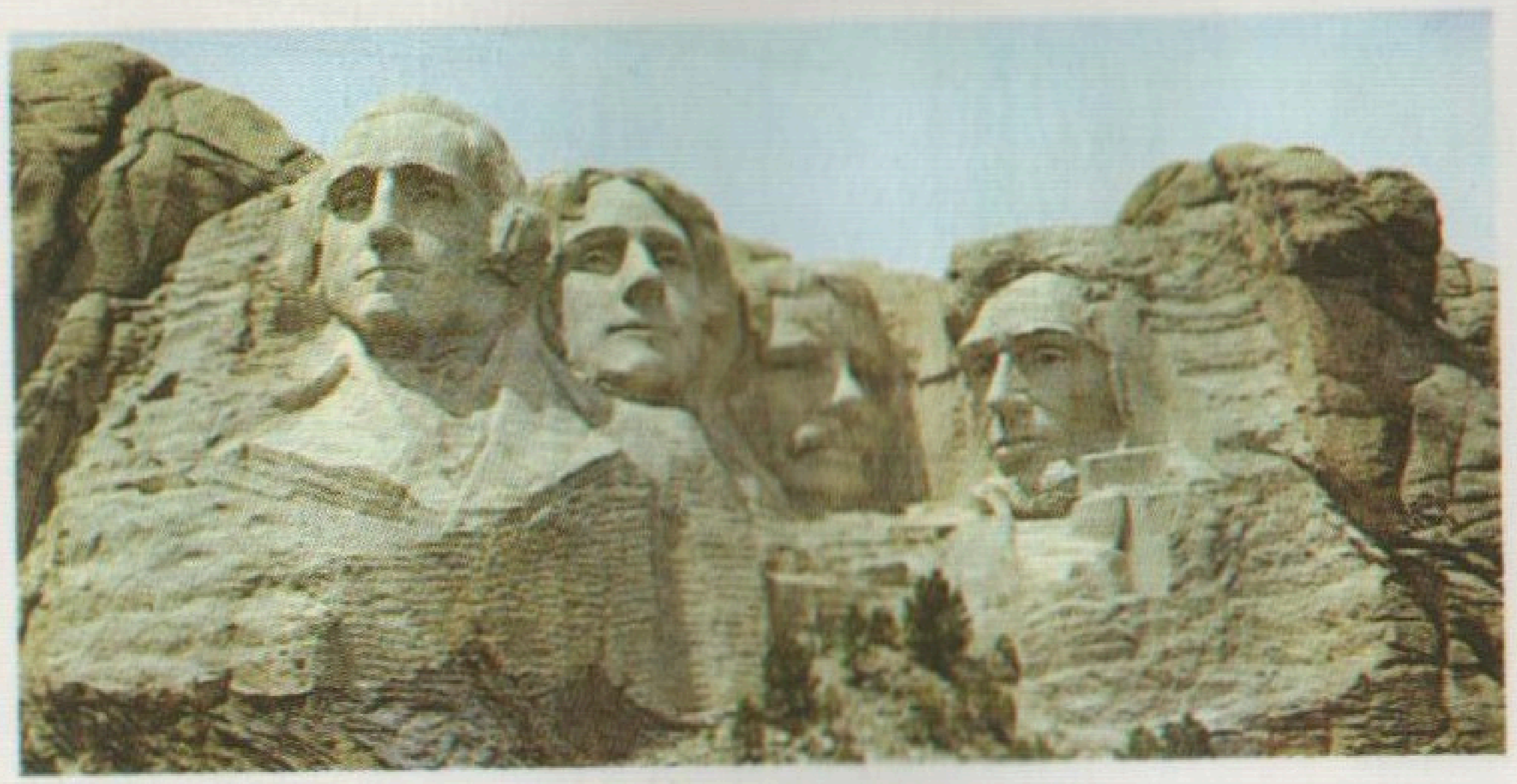




Sources of extreme heat deep below the earth's surface are responsible for a substance called 'magma', a form of molten rock under great pressure.

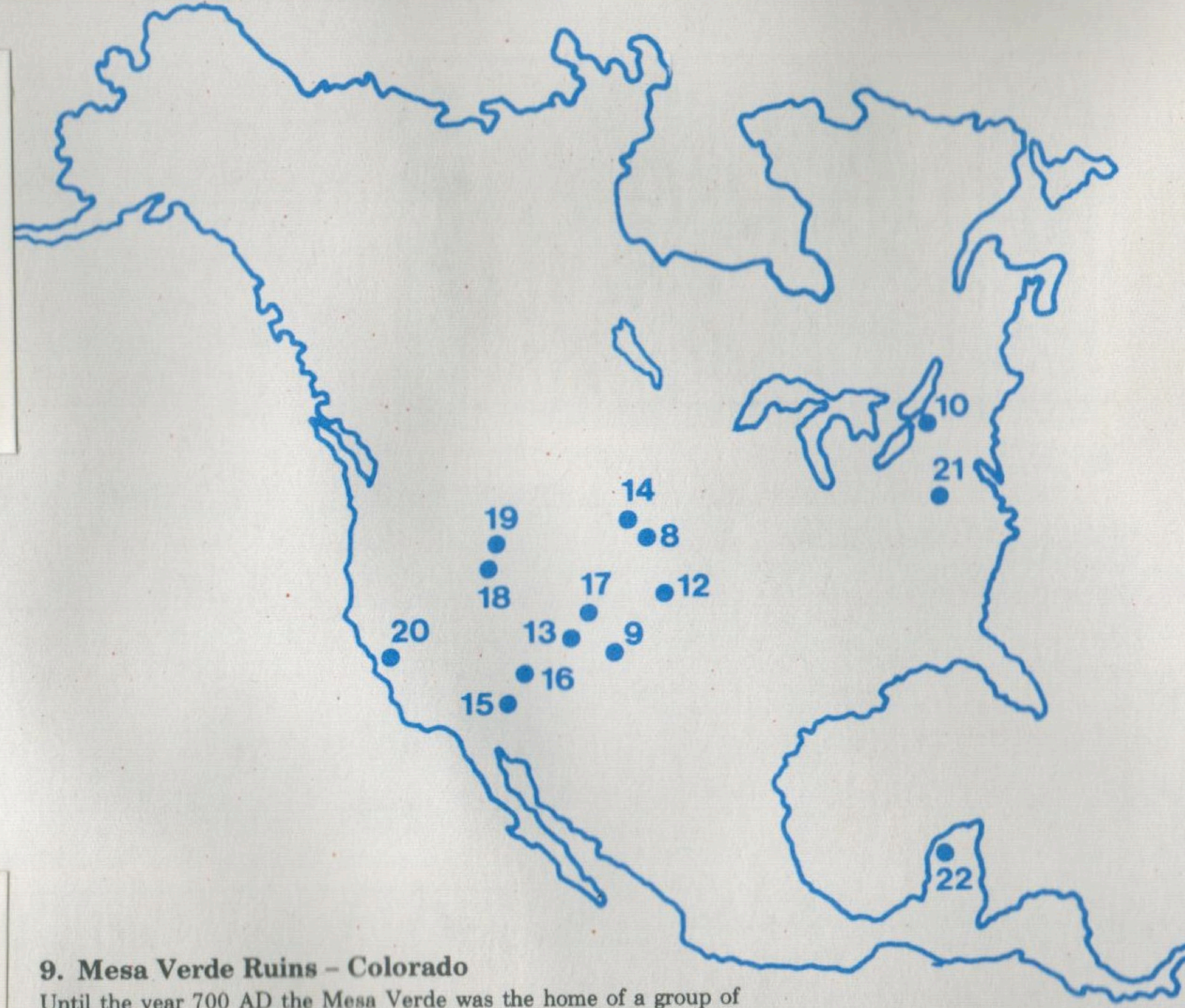


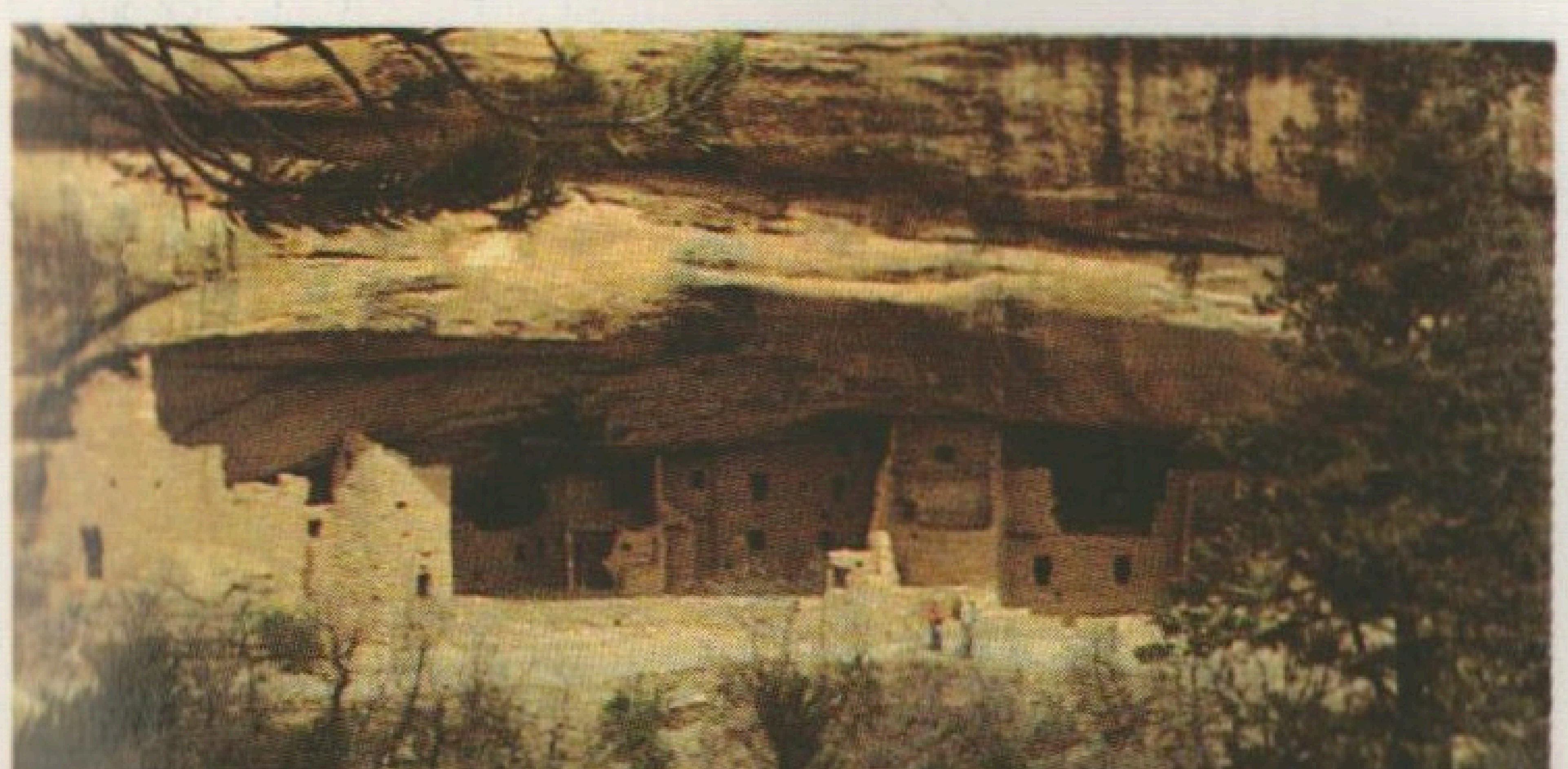
Magma will force its way up through weak areas and cracks to form the 'pipe' of a volcano. It rises at a temperature around 1000 degrees centigrade and can erupt quite violently from the cone of the volcano.



8. Mount Rushmore – Dakota

The Mount Rushmore National Memorial is famous for the fantastic likeness between the giant granite faces which have been carved out of the side of the mountain, and the past Presidents of the USA to whom they are dedicated. Each face measures 18 metres from chin to forehead and the four together cover an area of 5 square kilometres. They represent George Washington, Thomas Jefferson, Abraham Lincoln and Theodore Roosevelt. The memorial reminds the people of the important role of a President in formulating and strengthening American democracy. John Borglum, the American Sculptor, designed and executed the work which is the largest sculpture ever undertaken. It was completed in 1941, the year in which John died, by his son Lincoln.

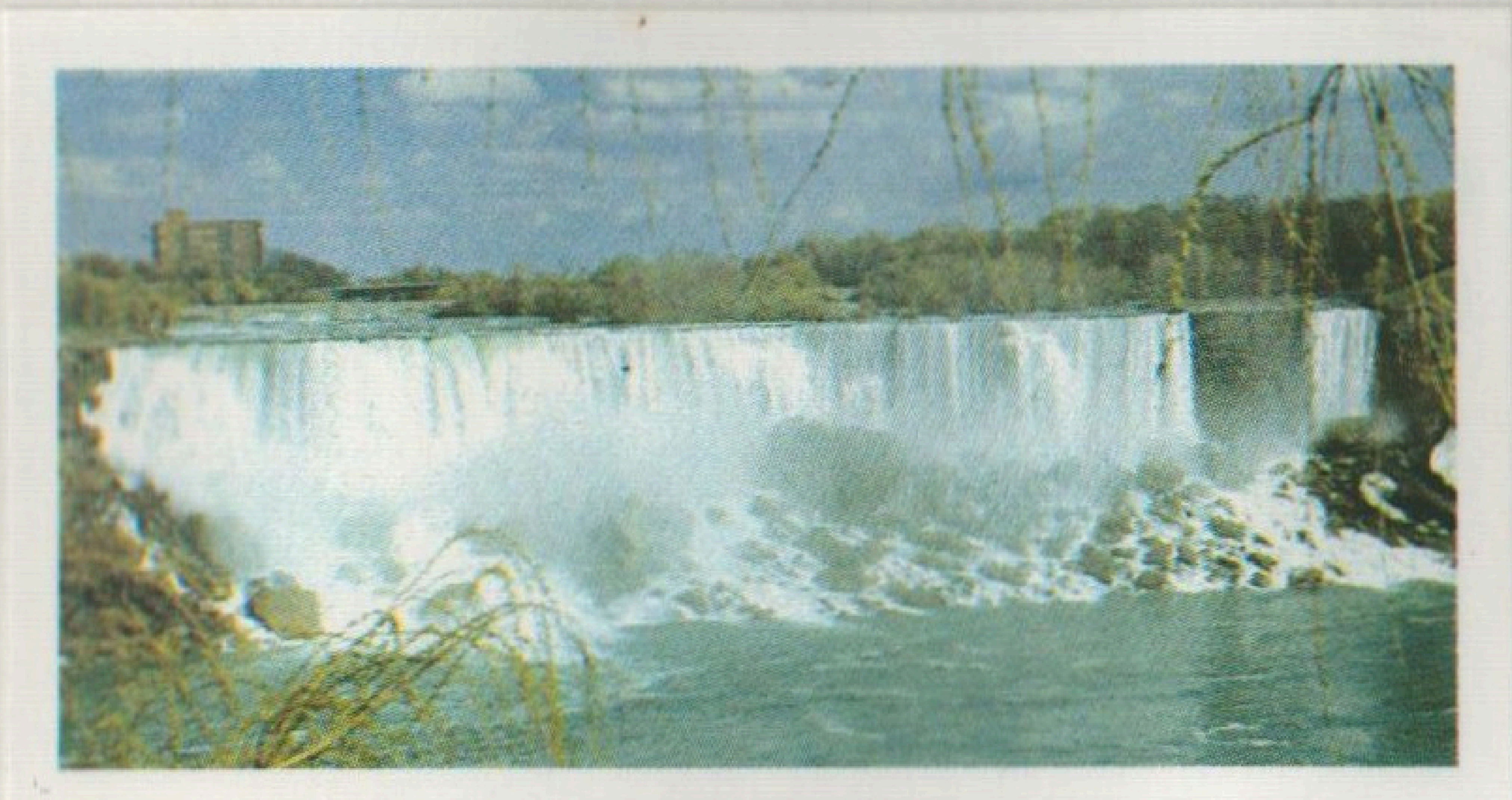




9. Mesa Verde Ruins – Colorado

Until the year 700 AD the Mesa Verde was the home of a group of prehistoric Indians known as the Basket Makers. They were then replaced by the Pueblo Indians who remained there until almost 1300 AD. The Mesa Verde, or 'Green Tableland', is an area of precipitous high walled canyons measuring 24 kilometres by 13 kilometres. The peace loving Pueblo Indians built these fantastic, almost inaccessible, cliff dwellings during the 11th century to provide security from other Indian tribes who were nomadic and hostile. They abandoned the area at the end of the thirteenth century when severe drought and harassment from the warlike Indians made life intolerable. The caves remained undiscovered by the white man for 500 years.

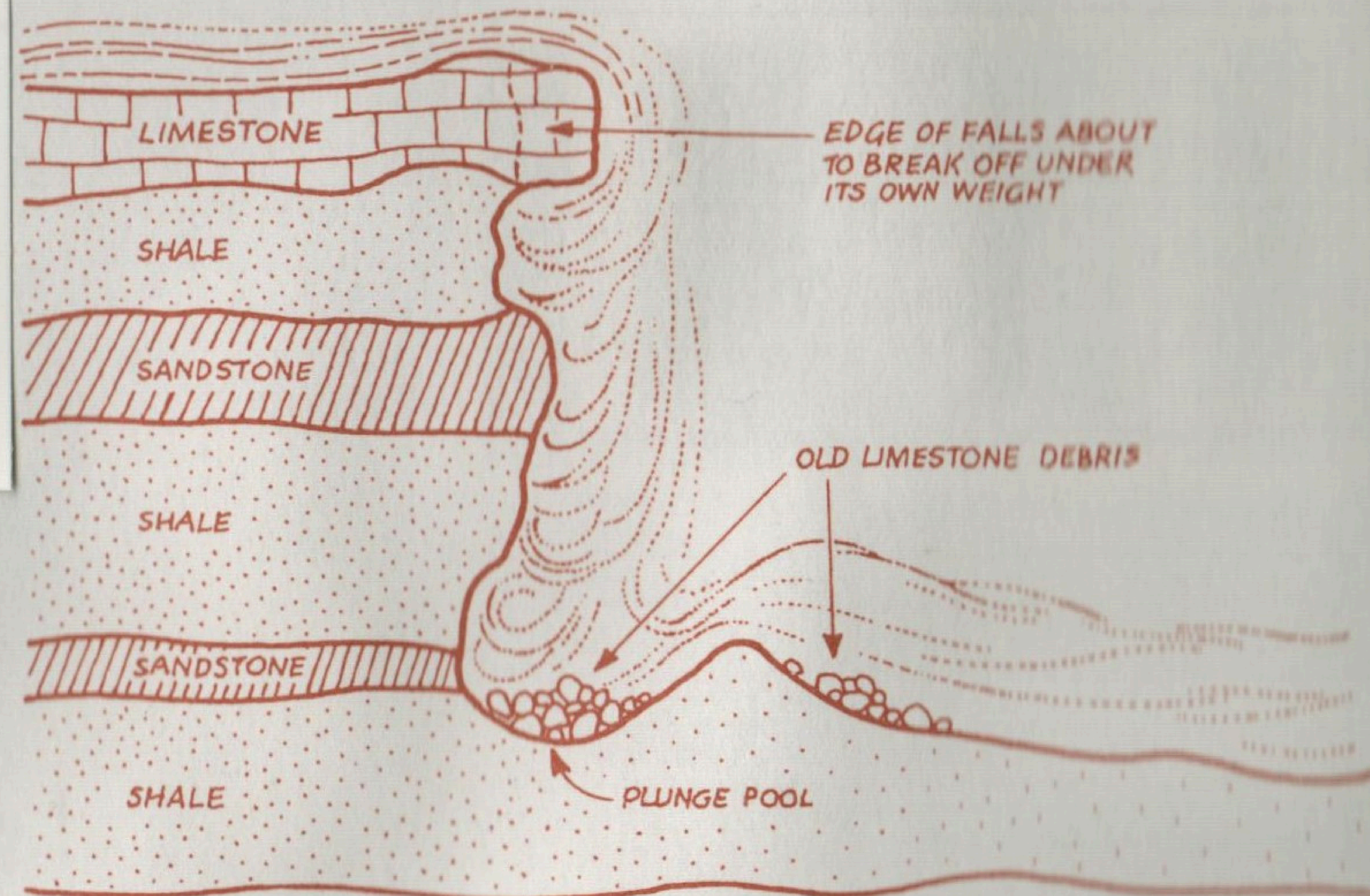
AMERICA



10. The Niagara Falls

The Niagara river, on its way from Lake Erie to Lake Ontario, hurtles over a 55 metre high escarpment to form the world's most famous and spectacular waterfall. The head of the falls is separated by Goat Island in the centre of the river. The distance from the American side of the river to the island is 323 metres. The falls then follow a horseshoe alignment for a further 670 metres to the Canadian side of the river.

Due to the undercutting of the cliff the falls move back about 1.5 metres a year towards Lake Erie. When they have been cut back to a position 3 kilometres further upstream they are likely to change into rapids because the river bed will then be formed of shale which is not strong enough to form the head of a waterfall.



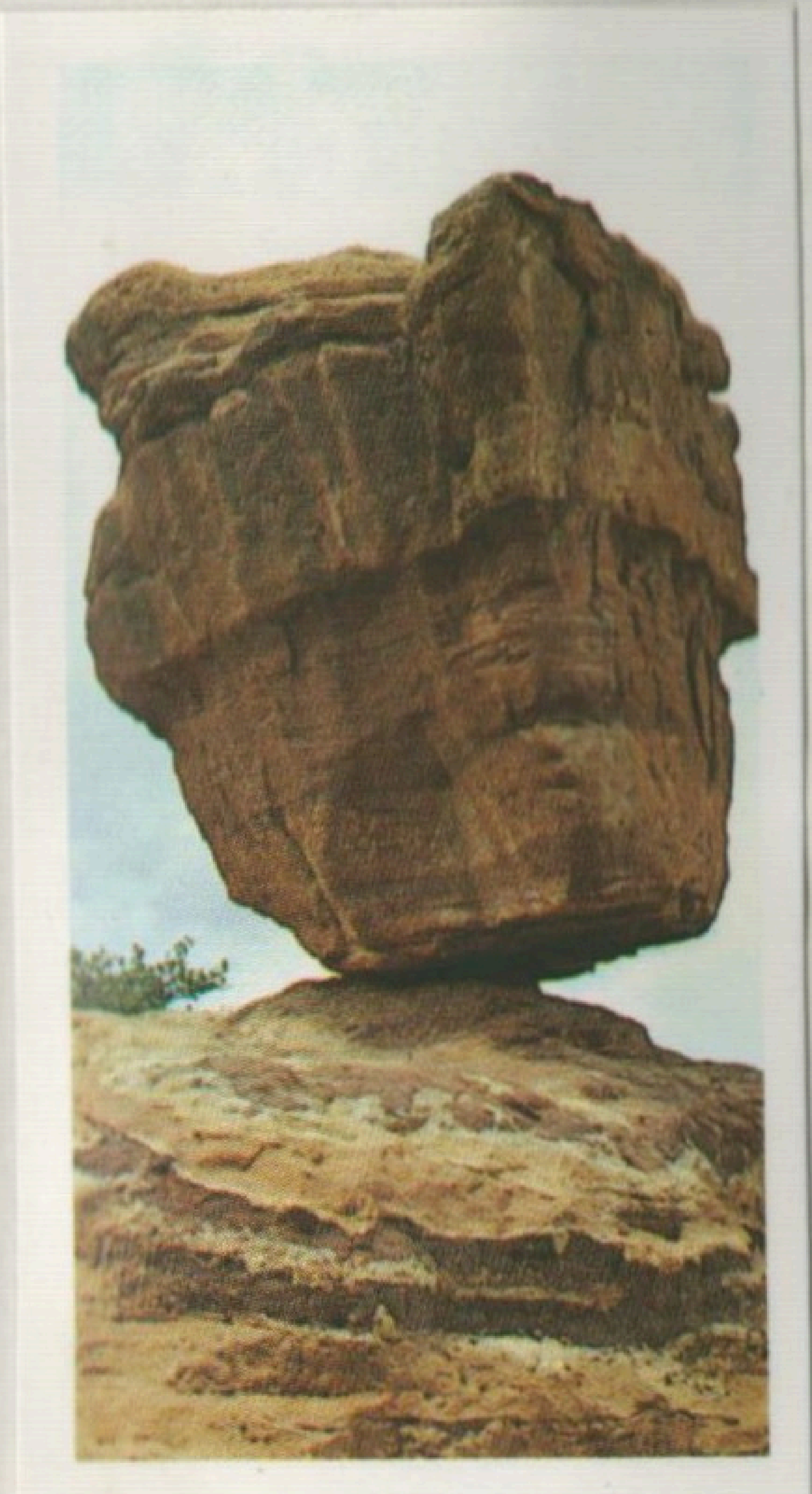
A river flowing over a layer of hard rock will attack underlying layers of softer rocks in its descent to the 'Plunge Pool'. The edge of the surface rock will withstand a certain amount of undermining but must eventually collapse under its own weight. The position of the waterfall will gradually move upstream.

11. Iguassu Falls – Argentina/Brazil Border

These magnificent falls which separate Argentina from Brazil are amongst the finest in the world. Located in a jungle setting the snowy white waters of more than 270 individual cascades contrast vividly with the brilliant emerald green of the forests. The mass of spray spread along the 4 kilometres of the falls provides a spectacular display of rainbows. These add to the colour already provided by multicoloured parrots and exotic wild orchids and begonias.

Many of the individual cascades drop 80 metres from the escarpment to the river in one fall. Others are arrested in flight by midway ledges. The whole area may be described as an ocean pouring into an abyss.

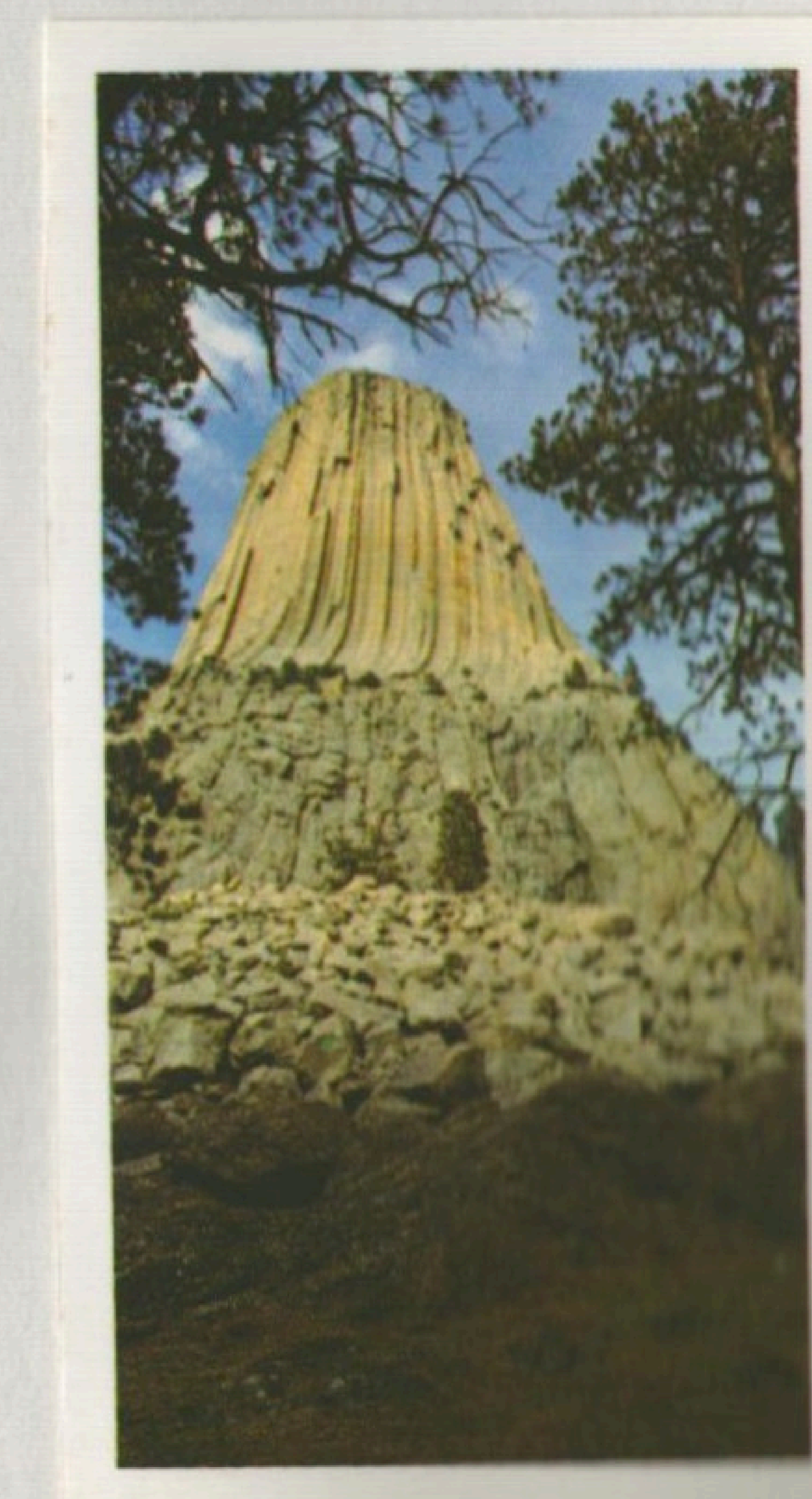




13. Looking Glass Rock – Utah

Located in the foothills of the La Sal Mountains of the Colorado Plateau, Looking Glass Rock is a salmon coloured sandstone wall pierced by an opening some 15 metres wide and 8 metres high. The colouring comes from very tiny particles of iron in the almost pure quartz. On looking through the opening one has the impression that the view is a reflection of the opposite wall hence the name Looking Glass.
The stone has been weathered away over a very long time by rain, wind, snow and ice. The erosion eats away at the rock, starting at the weakest point and leaving arched shapes such as this one. One day it will all collapse.





12. Garden of the Gods – Arizona

This huge balanced rock lies to the north of Colorado Springs. It is one of a number that have been carved by nature into grotesque shapes resembling human and animal form. They have a variety of pink, red and brown colouring due to the iron oxides in the stone. The rocks completely surround a grass covered area which is reached through a narrow gorge of steep sided walls worn away by centuries of erosion. The 'Logan Stone' of Dartmoor (see card number 44) are similar forms of balanced rocks which have been eroded over millions of years from their original rectangular shapes.

14. Devils Tower – Wyoming

This gigantic monolith was formed by the cooling of molten magma, thrown up from deep within the earth's crust and surrounded by layers of sedimentary rocks. A slow cooling resulted in a symmetrical pattern of vertical cracks as the magma began to contract. The tall slender polygons of the tower are 265 metres above the forest floor. The base of the tower is nearly half a mile in diameter. The summit, which tapers to a diameter of 85 metres, can be seen from 160 kilometres away.
It is the tallest monolith of its kind in the United States. The geological form of its fluted columns has a similarity with the Giants Causeway in Northern Ireland (see card number 32).



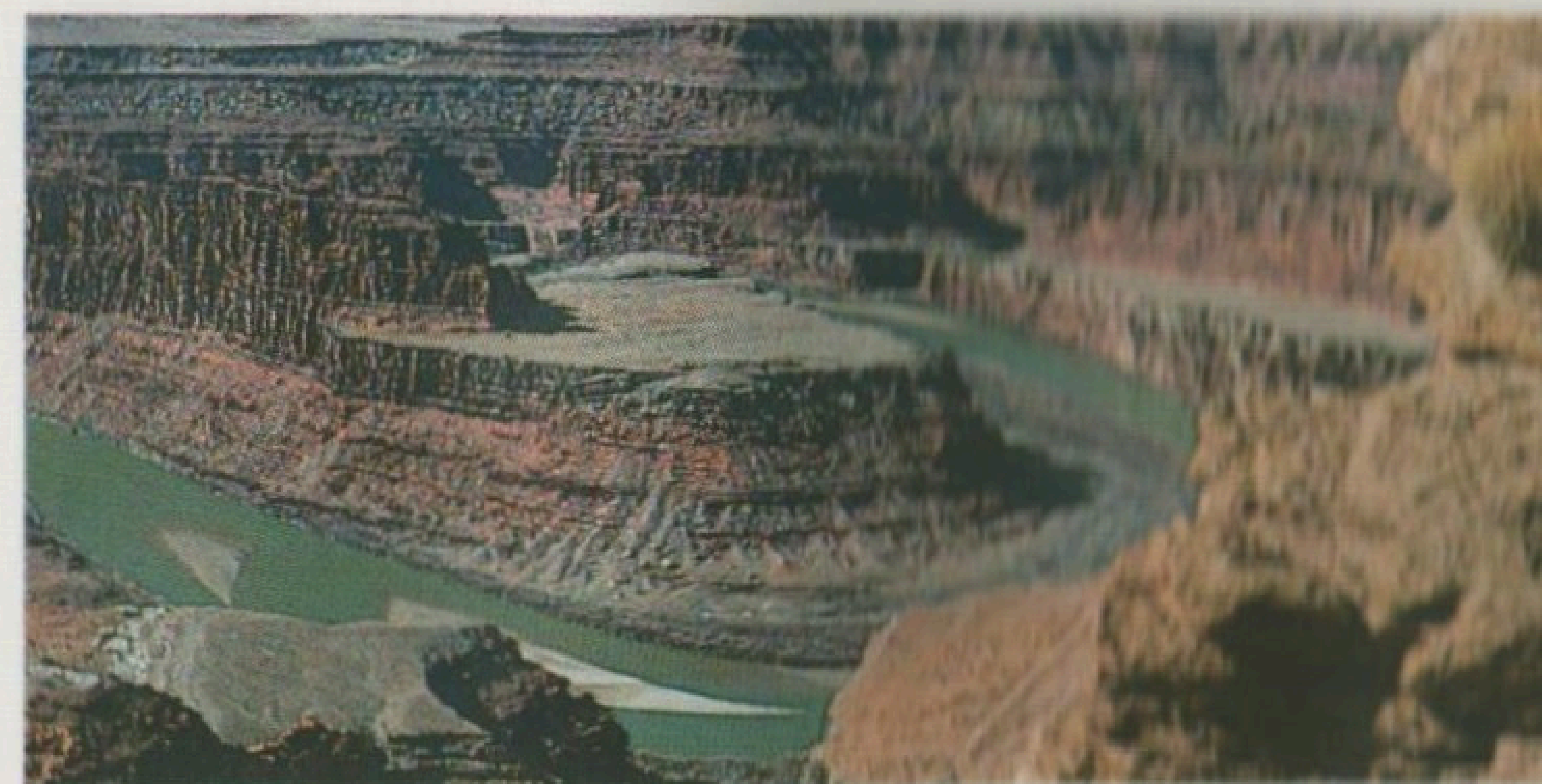
15. The Grand Canyon – Colorado

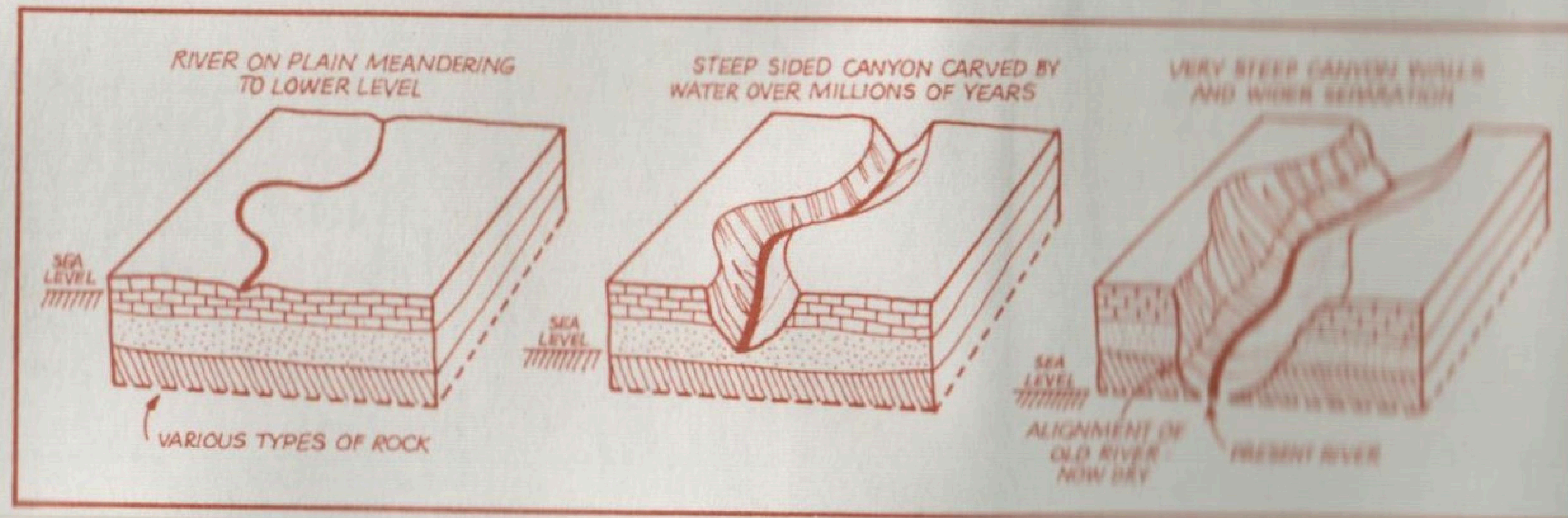
The Grand Canyon, the largest in the world, has been carved out by the Colorado river over a distance of approximately 400 kilometres. Its width varies from 3 to 24 kilometres and in places it is more than 2130 metres deep. Twelve layers of major rock formations can be seen in the sides of the canyon the oldest of which is estimated as being 2000 million years old.

Evidence that the whole area was at one time covered by prehistoric seas is to be found in the fossilised sea plants, reptiles, corals and other marine life. The massive rock formations and fascinating sandstone shapes carved by the elements provide a multicoloured, magnificent panorama seldom equalled anywhere on earth.

17. Dead Horse Point – Utah

Dead Horse Point towers 910 metres above the Colorado Canyon overlooking 12,800 square kilometres of the rugged and colourful Colorado Plateau. It has the La Sal Mountains to the east, Abajo Mountains to the south, Henry Mountains to the south-west and the Aquarius Plateau to the west. Many years ago a band of wild ponies was driven on to this point so that the better ponies could be selected for breeding. The remainder were left to return to the range but became so confused by the unusual topography of the point that they roamed around in circles, eventually dying of thirst. The Colorado river was only 400 metres away as the crow flies.





Canyons are created by the powerful erosive effects of rivers over millions of years. When the land is uplifted or when the level of the sea is lowered the river may flow faster and have a greater scouring effect on the land. Wind, snow and rain will 'weather' the sides of the Canyon into a varity of shapes.

16. Bryce Canyon – Utah

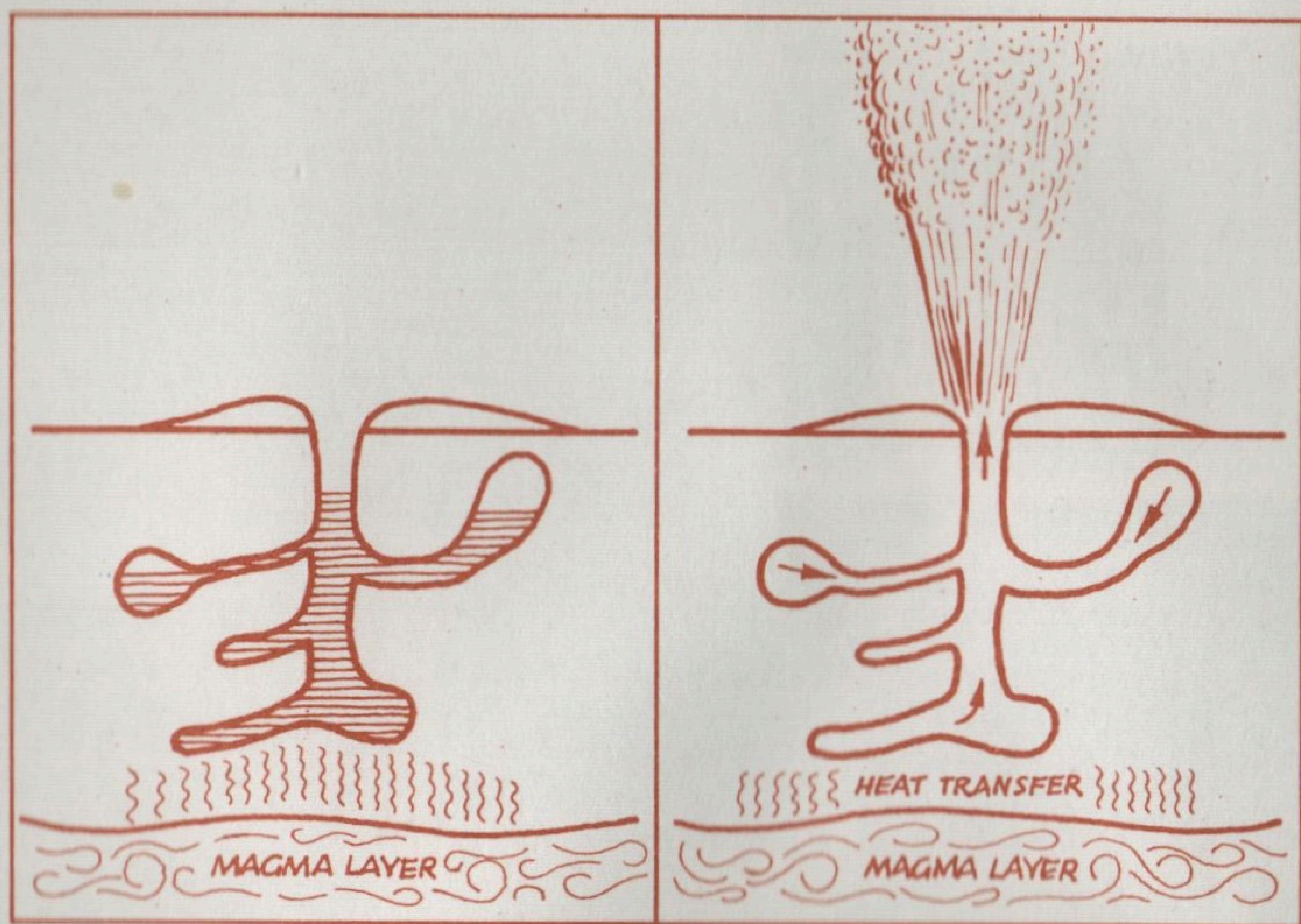
Bryce Canyon is a mass of various shaped ravines surrounded by a network of freestanding weather-beaten rock columns, spires and pinnacles. They are sandstones, limestones and siltstones all of which contain iron and other metals which reflect a rainbow of colours. The changing atmospheric conditions, particularly the water content of the air, turn these reflections into a kaleidoscope of colours which are for ever changing.

The erosion caused by torrential rain followed by flash floods and swollen streams which crash through the ravines continues to this day. The rim of the plateau surrounding the canyon is retreating at an estimated rate of one metre every hundred years.

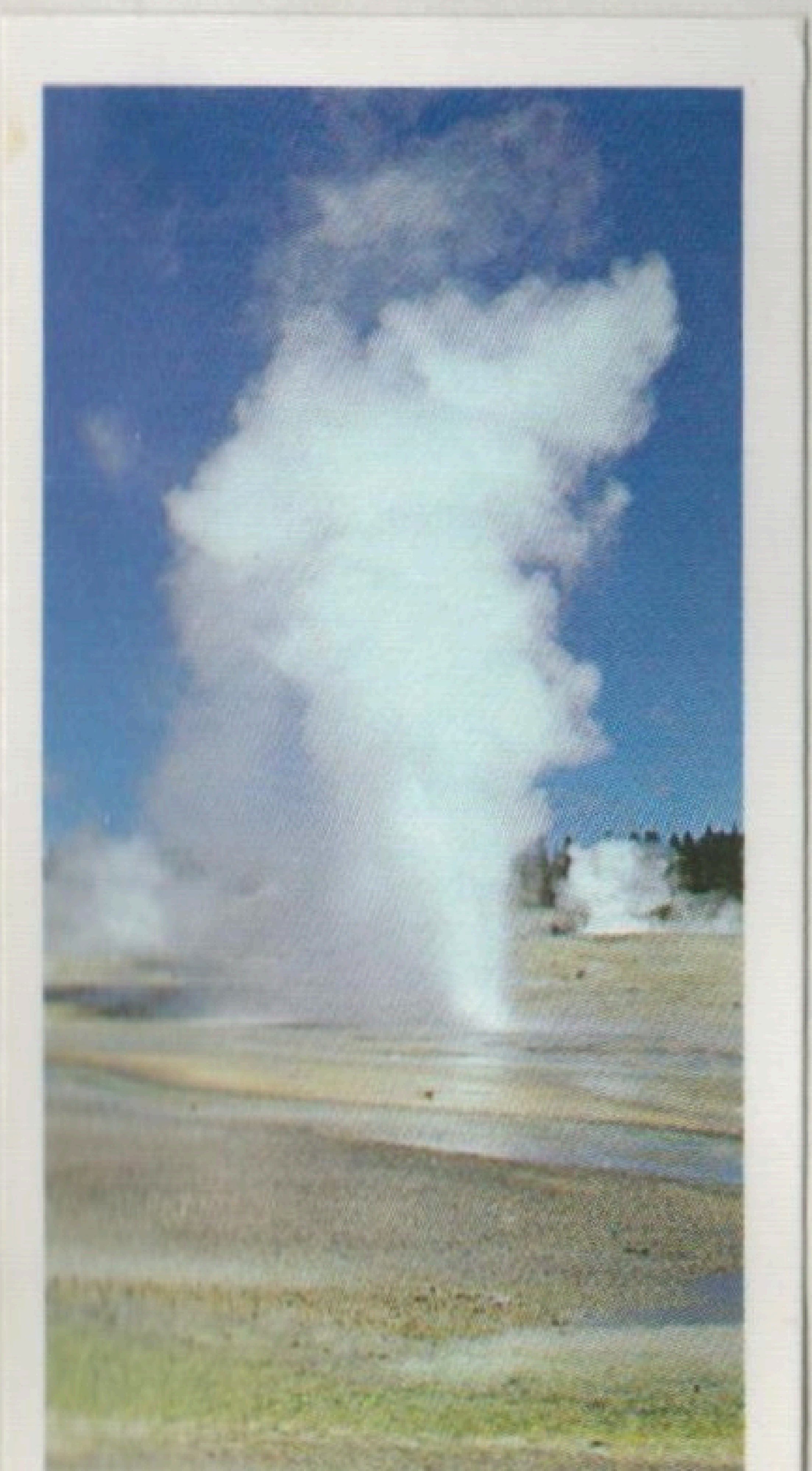


18. Norris Geyser – Wyoming

The geysers and hotsprings of Yellowstone, the oldest national park in the world, are famous for their spectacular display of fountains of steam and colourful boiling surfaces. The park's 1000 hotsprings and 300 geysers provide the world's largest and most varied concentration of geothermal phenomena.
Melting snow and rain seeps through the ground surface into fissures leading down to a layer of hot rocks. It is rapidly raised to boiling point and, like water in a kettle, is transformed to hissing steam that leaps skyward as intermittent fountains of steam and hot water.



Geysers originate from water seeping through fissures in the rocks and being raised to boiling point by heat transferred from the underlying magma. Water at the lowest level is under greatest pressure and therefore has a higher boiling point. An overflow at surface level decreases the pressure and superheated steam from the lower level shoots upwards.



19. Yellowstone Hot Springs – Wyoming

The terraces of the Yellowstone Hot Springs are a perfect example of the beauty and grandeur that can be produced by nature. This multicoloured display of unusually shaped steps, pools and terraces is the result of dissolved limestone brought to the surface by subterranean hot springs. This cools and evaporates as it flows through the pools and cascades, depositing limestone in the form of terraces.
Algae and bacteria, which can exist and grow in water of varying temperature, provide the colour which enhances the picturesque quality of the scene.





20. Crater Lake – Oregon

Crater Lake was created by the collapse of Mount Mazoma, one of the largest volcanoes in the Cascades Mountain range. The lake, which is almost circular in shape, is nearly 10 kilometres in diameter and is one kilometre deep.

The mountain reached a height of some 3657 metres approximately 7000 years ago. Violent and powerful eruptions gradually removed so much of the underlying base of the mountain that it collapsed leaving the typical cone shaped summit of a volcano. Melt-water from the snows combined with rain soon filled the depression to form Crater Lake. Because of the depth and purity of the water it has the colour of a deep blue sapphire.

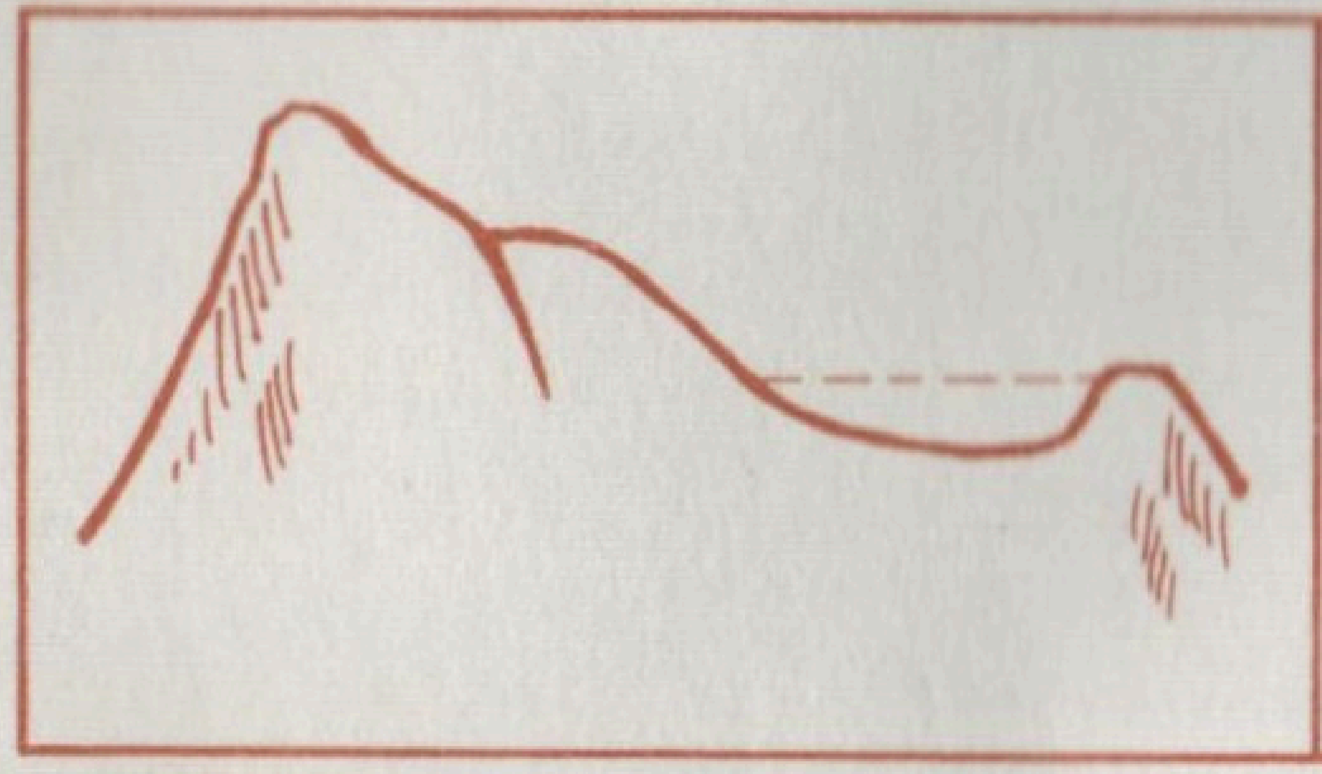
21. Luray Caverns – Virginia

The Luray Caverns contain the largest caves in Virginia, USA. They were once described by the Smithsonian Institute as probably being more completely and profusely decorated with stalactite and stalagmite formations than any other cave in the world.

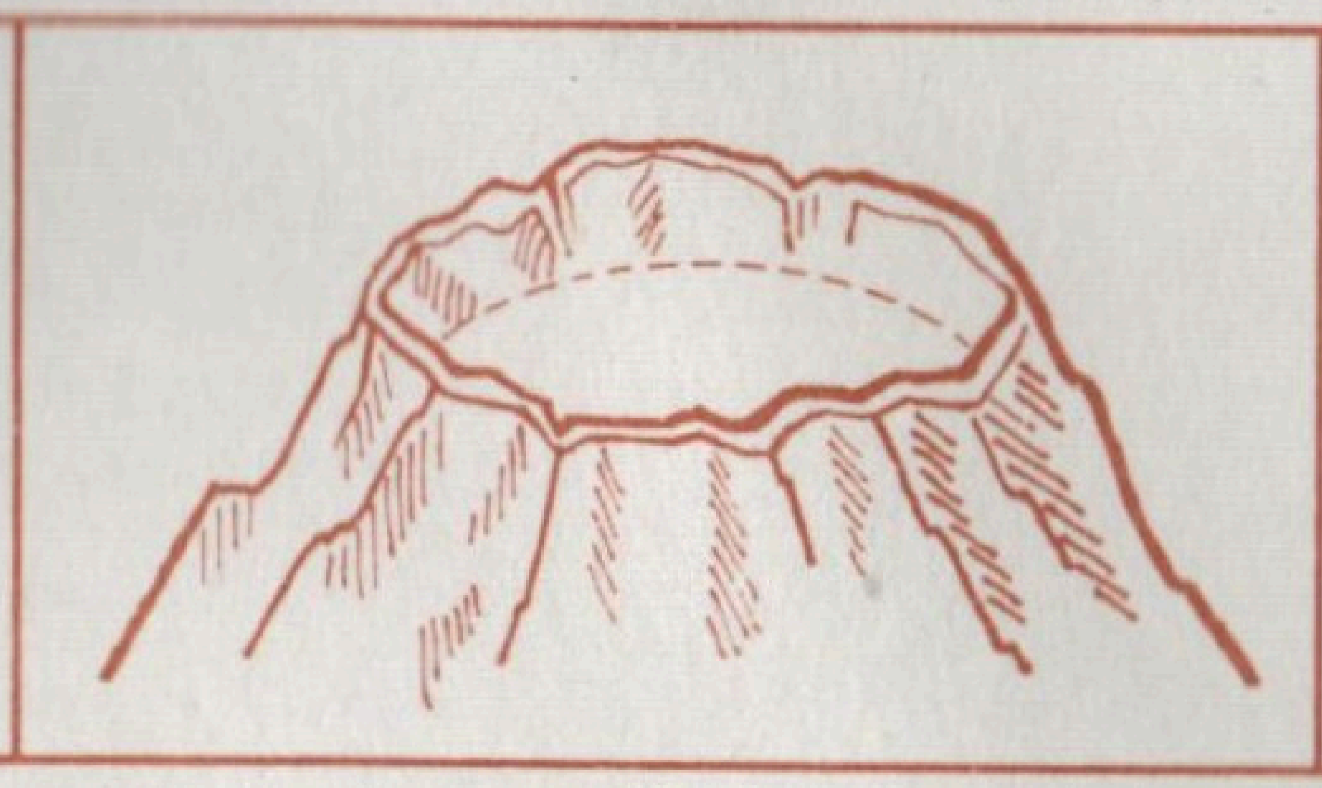
Cathedral Cave is aptly named because of its remarkable organ-like formation. There are two bodies of water in the cavern named *Dream Lake* and *Silver Sea* and other caves such as the *Giants Hall* and the *Ballroom.*

During the American civil war, the Confederate forces established a nitrate plant in the nearby Saltpeter Cave for use in the manufacture of ammunition.

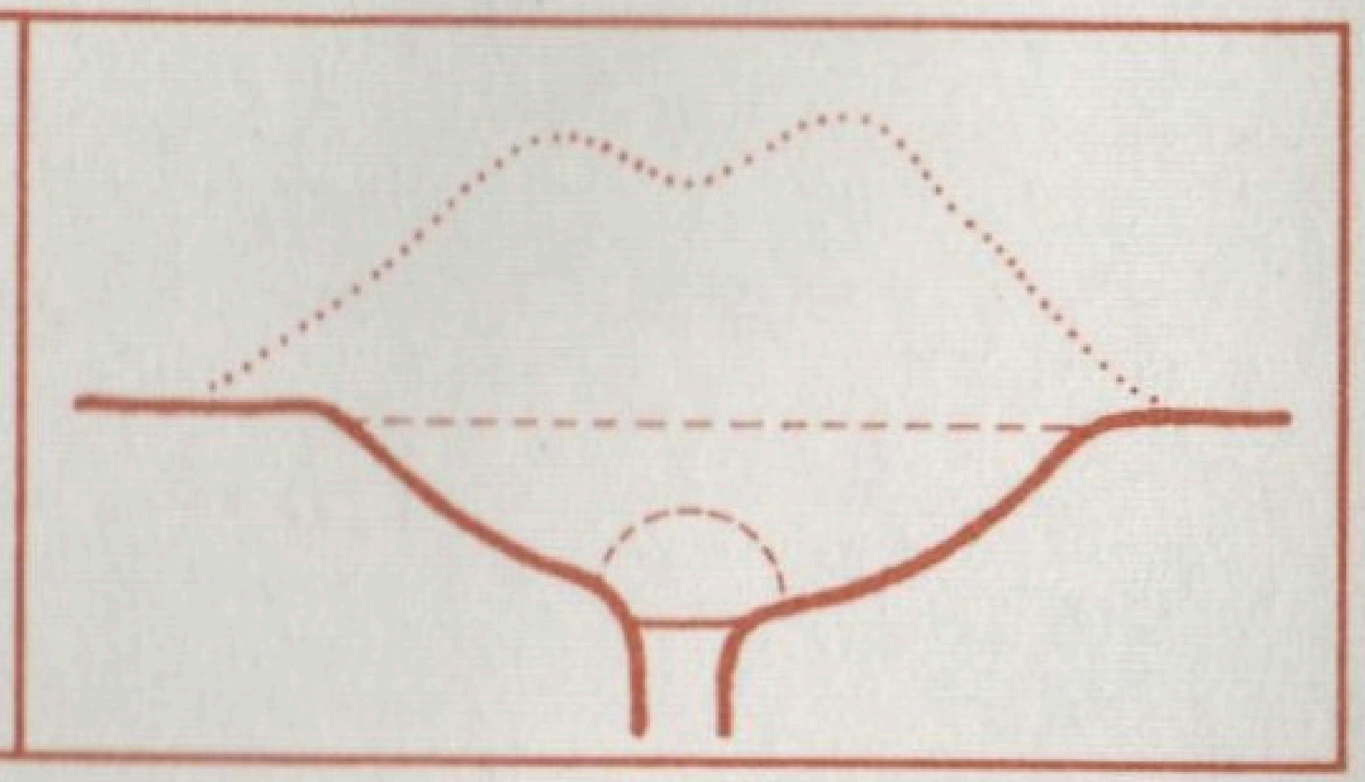
A lake is created whenever there is some form of barrier to prevent water from draining away to a lower level.



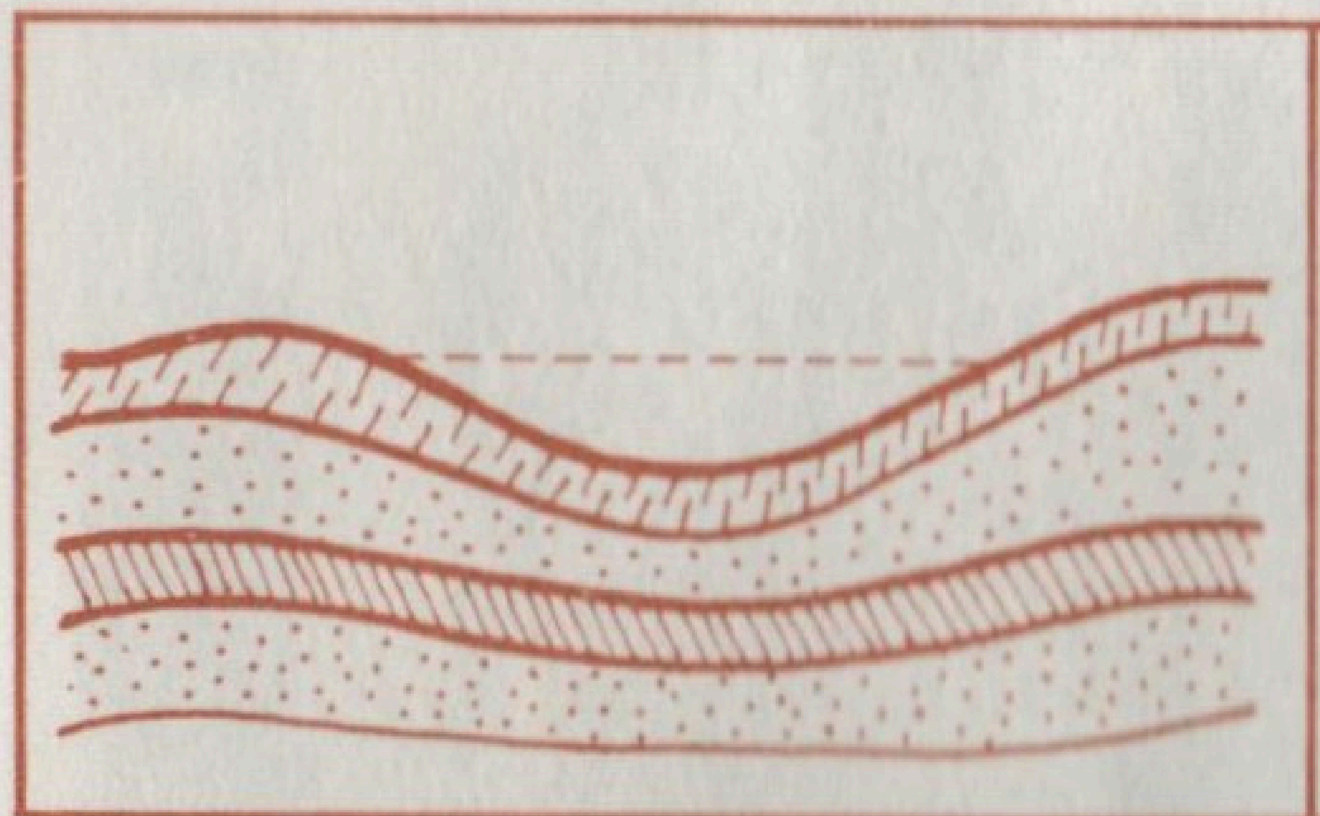
Water trapped in a depression scoured out of the rock by a mountain glacier.



A volcanic crater filled by rain and snow.



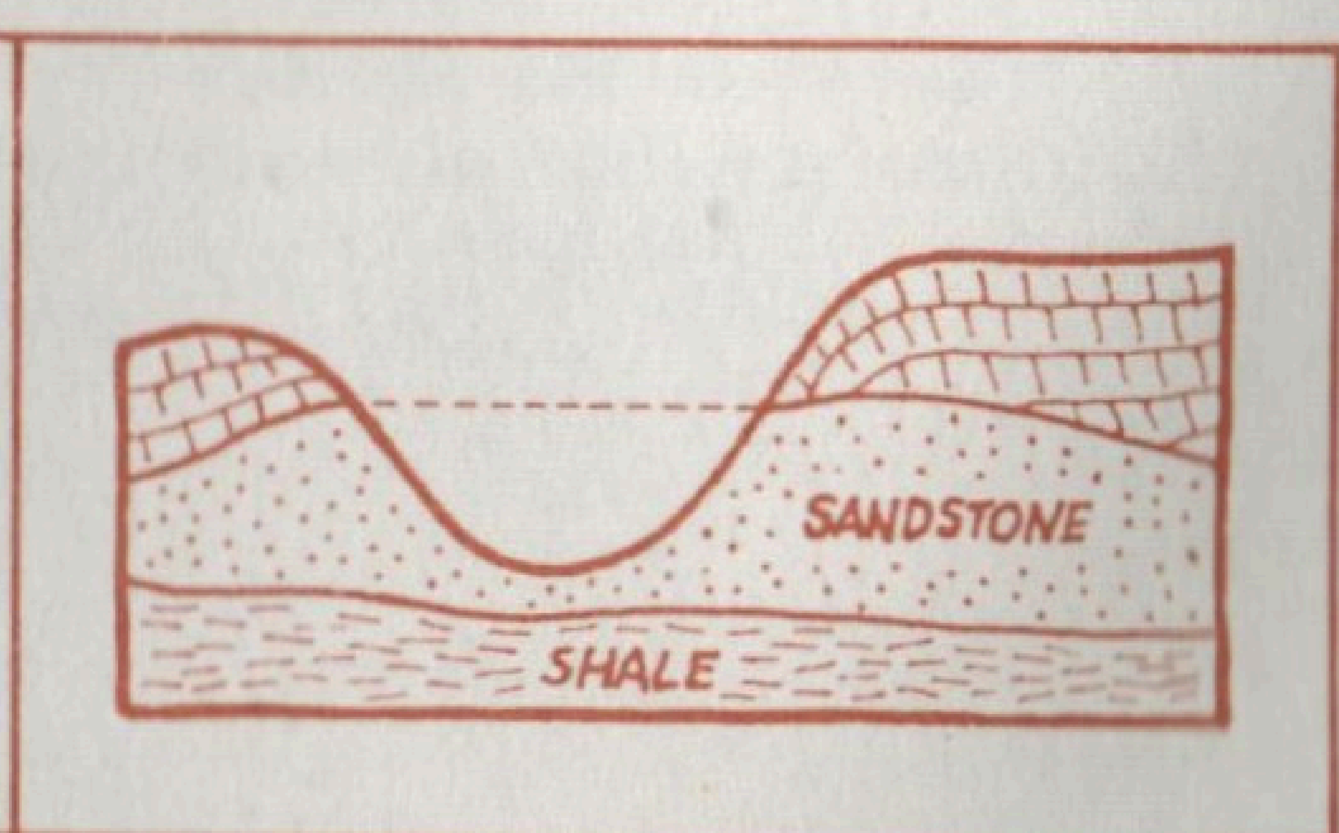
Very large lakes are formed when the cone of a volcano collapses.



A basin in the earth's crust.



Lava blocking a valley.



A depression which is lower than the surrounding water table.





22. The Pyramid of Kukulcan – Mexico

This famous South American Pyramid is one of a number of religious buildings built by that great warrior race of 'Mayas'. They were at their greatest during the 8th century AD but their powerful Mayan empire had virtually disappeared by the time the Spanish arrived some 700 years later.

The architectural accomplishments such as these enormous pyramids, which are more than 60 metres high, are evidence of an intelligent and capable people. They were also both a religious and cruel people. This pyramid at Chichen-Itza is where the hearts of living people were cut out and sacrificed to their god Hunabku.



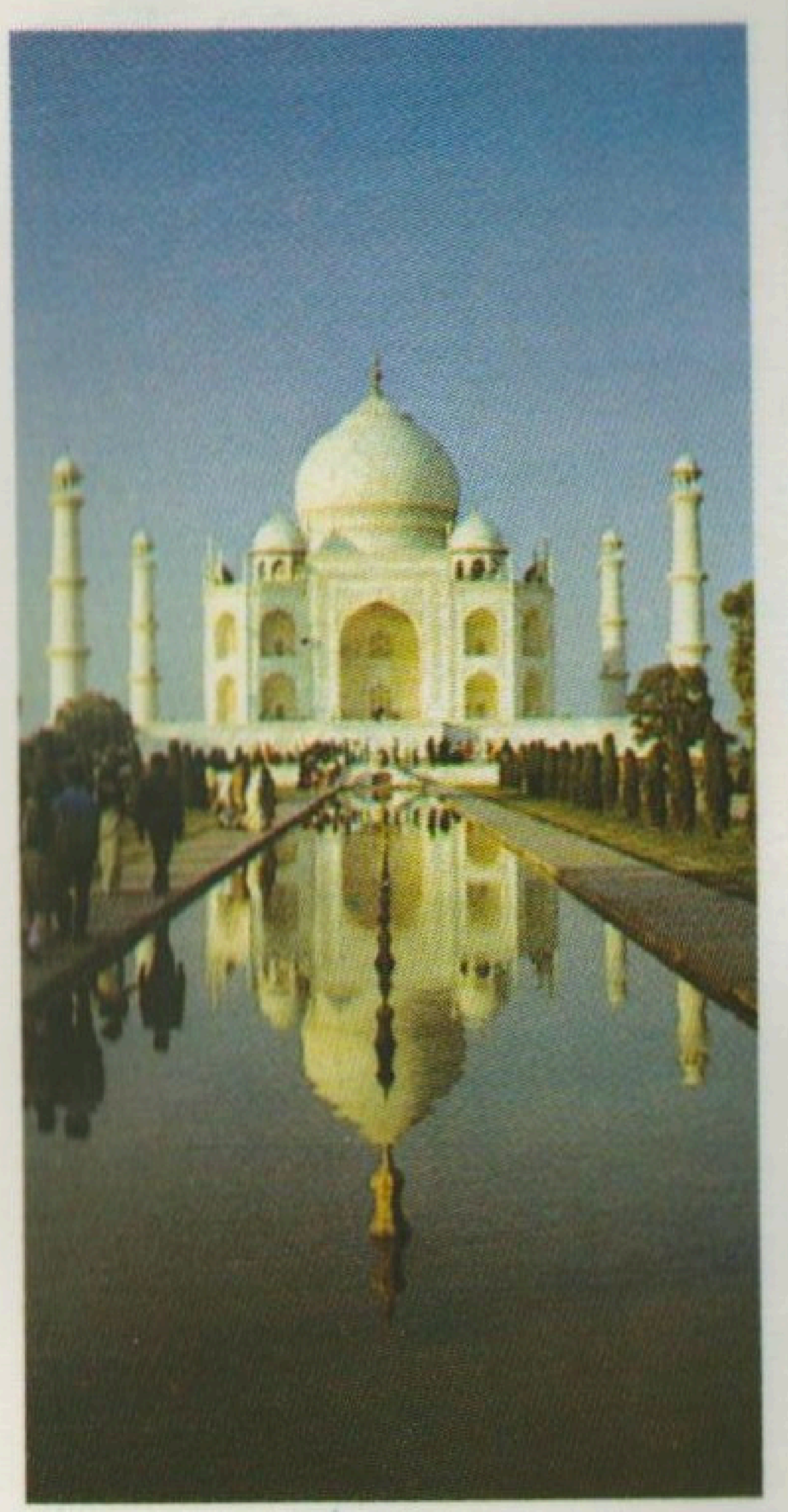
23. The Andes Mountains – South America

The Andes is the largest mountain system in the world. It stretches in one continuous chain of more than 8000 kilometres from Cape Horn to the Isthmus of Panama. In places it is more than 300 kilometres wide.

Mount Aconcagua is 6960 metres above sea level and is the highest peak in the Andes and in the Western hemisphere. It is difficult to imagine that the rocks that form this vast and awe inspiring mountain range lay at the bottom of the sea some 600 million years ago before the mountains were formed. Also that it is still growing upward by volcanic action and slow uplift of the land at an estimated rate of one millimetre each year.



ASIA



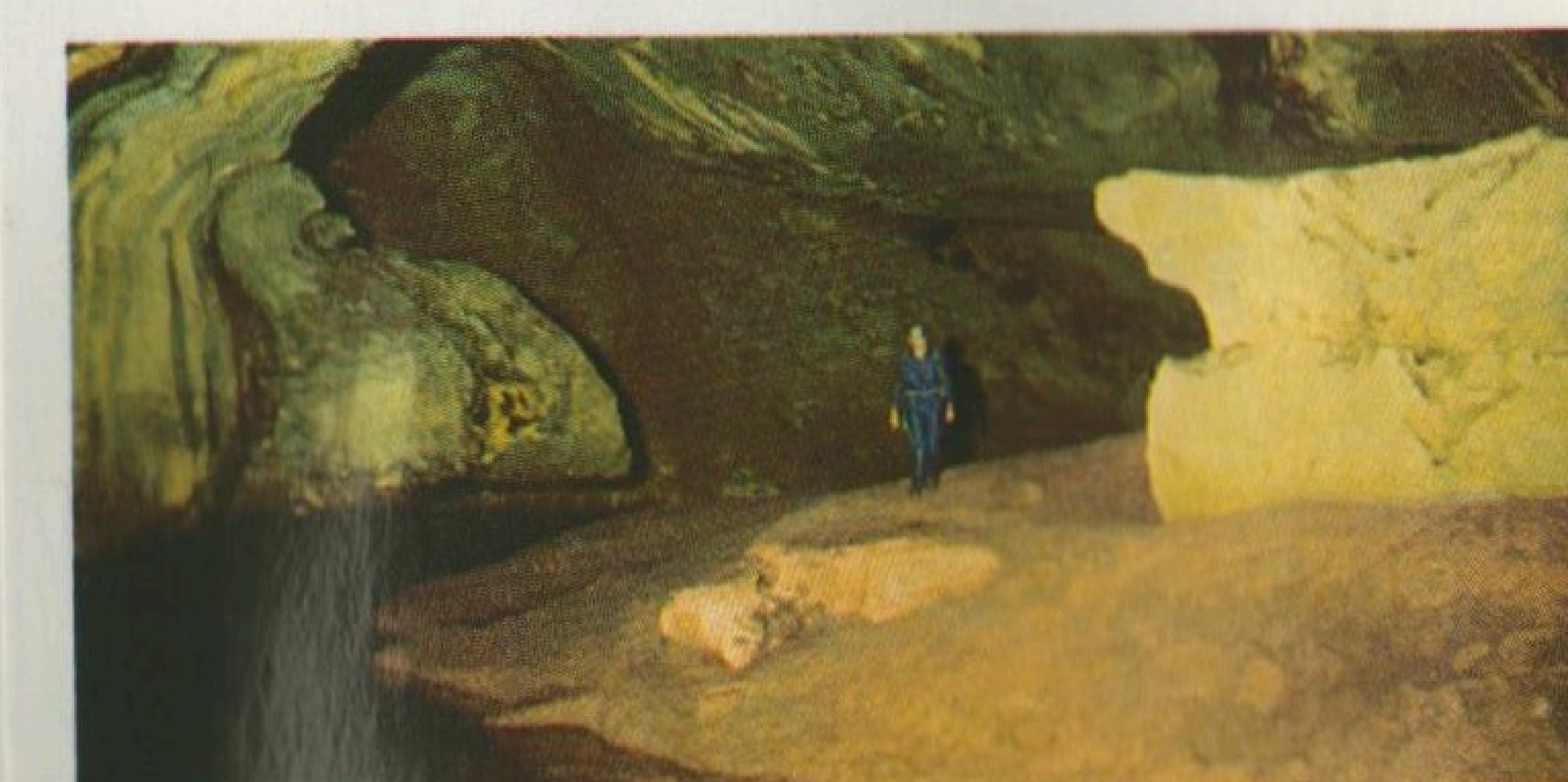


25. Cave of the Winds – Sarawak

The Gunung Mulu Caves of Sarawak, Malayasia are one of the worlds greatest cave systems. They were explored scientifically for the first time in 1978 by an international expedition. The speleologists surveyed more than 50 kilometres of newly discovered limestone caves in the Malinan river area. Among them was Lubang Agin or *Cave of the Winds* which had an explored length of 2285 metres and a water flow of 20 cusecs.
The caves are probably more than one million years old and contain an abundance of living creatures including eyeless white crabs and blind beetles.

24. The Taj Mahal – India

Built by Shah Jahan in memory of his wife Mumtaz Mahal, the Taj Mahal is an architectural wonder of white marble with inlaid decorations of agate, jasper, turquoise and heliotrope. When the moon is full the marble adopts an almost incandescent appearance which is an unforgettable experience to behold.
Completed in the middle of the 17th century it occupied 20,000 workmen for more than 22 years. Shah Jahan, the great Moghul Emperor, wanted this mausoleum to his beloved Mumtaz to be the most magnificent building ever to have been created. To this end he beheaded the chief architect, cut off the hands of the architect's assistants and put out the eyes of the draughtsmen.

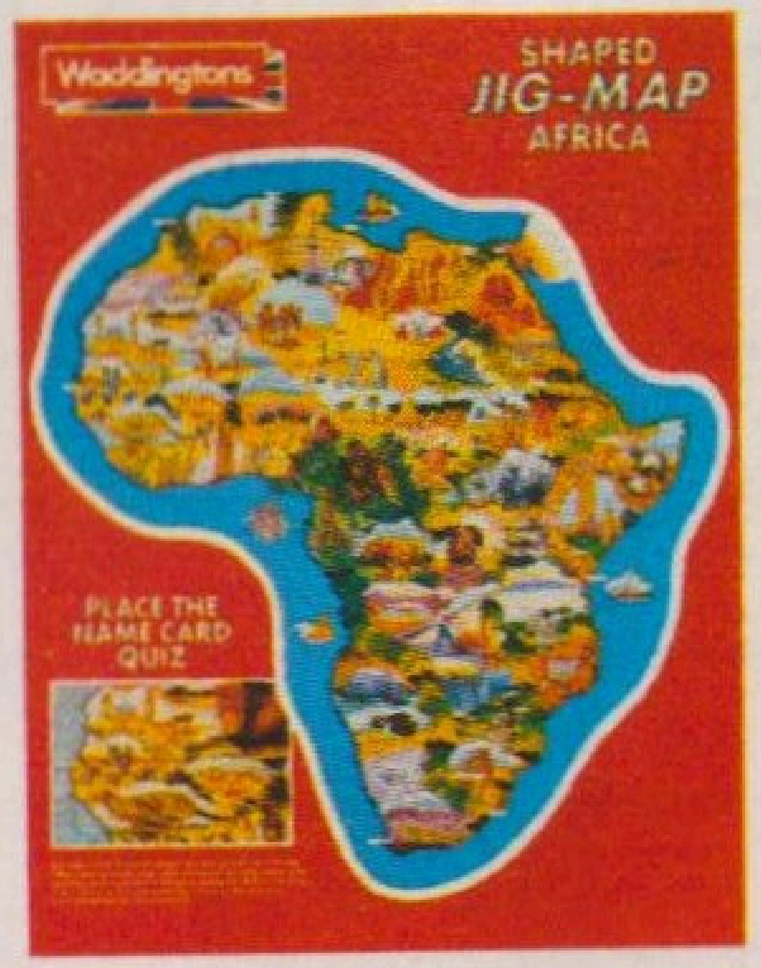


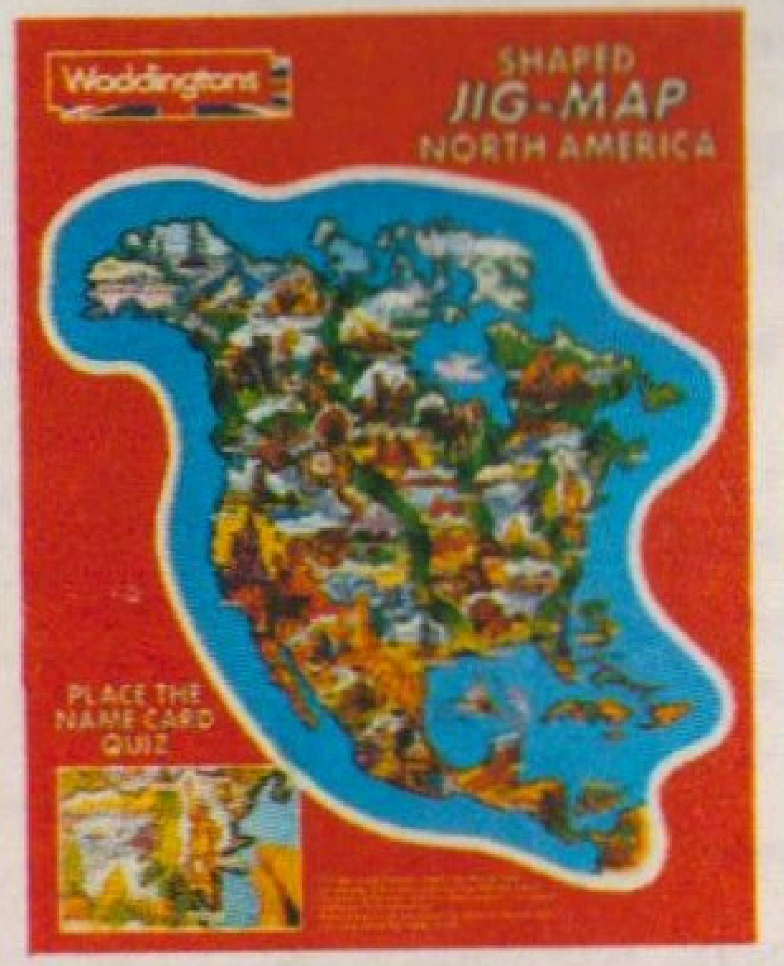
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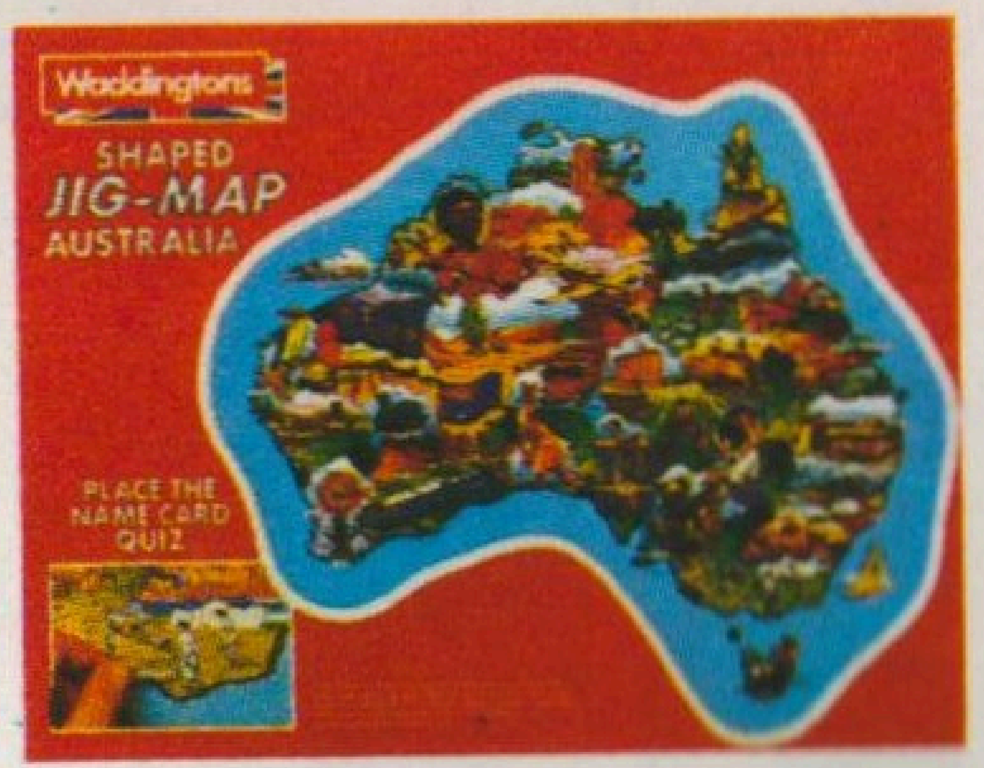












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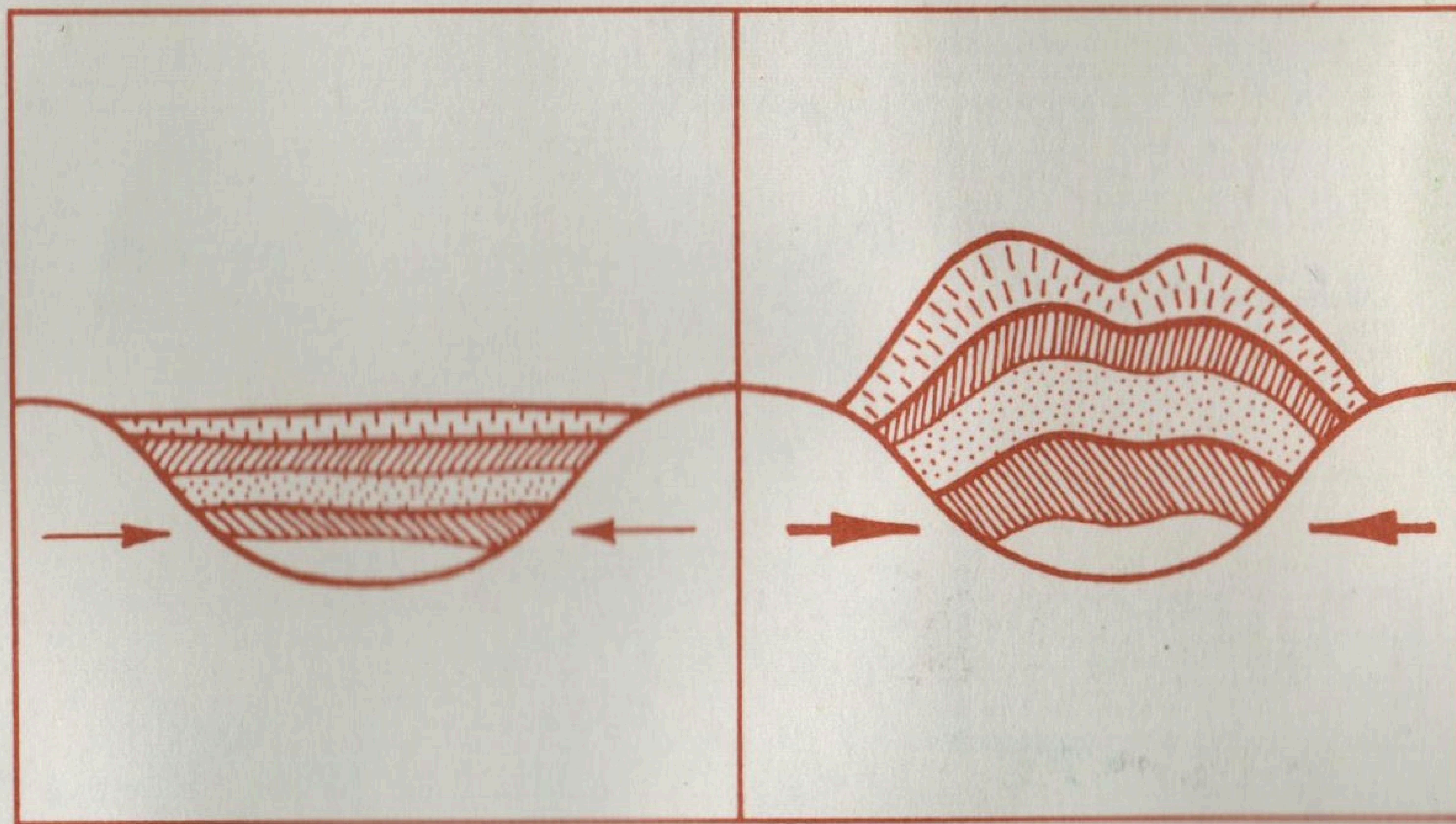
There are over 1,000 chances to win one of the prizes and you could win £1,000.

See inside back cover of Features of the World album for details.

26. Mount Everest – Nepal

The Tibetan name for Everest is Chomolungmo, meaning the Mother Goddess of the Land. The Nepalese call it Sagarmatha, the Summit of the Sky. It is 8848 metres above sea level and is the highest mountain in the world. Many lives have been lost on expeditions to reach the summit. In 1921, when the Dalai Llama permitted mountaineers to attempt the climb from the Tibetan side, the first British expedition under George Mallory reached a height of 6980 metres. In 1924 Mallory accompanied by Andrew Irvine reached a height of 8573 metres. The pair were seen to disappear in the swirling cloud near the summit and have never been seen again. The first to conquer Everest were Edmund Hillary, a bee-keeper from New Zealand, and the Sherpa Tenzing Norgay in 1953.





27. Mount Fujiyama – Japan

Fujiyama, famous for its beauty and symmetry, is the highest mountain in Japan. It rises to 3776 metres above sea level and has a near circular base 40 kilometres in diameter. The ridge line of the 700 metre wide crater at the top of the mountain is clearly visible from all directions. The last eruption took place in 1707 and spread ash and volcanic dust over a radius of 100 kilometres which reached as far as the capital city Tokyo.

To the geologist Mount Fuji is a strato-volcano, that is one built up of alternating layers of lava and ash. To the people of Japan it has the majesty and serenity befitting the dwelling place of the gods.



Mountains were created by very great pressures deep beneath the earth's crust. They are so powerful that they can bend and move rocks in many ways. Horizontal pressures on the sides of a sedimentary basin, as seen here, will compress the rocks which are then forced or 'folded' upwards. These can rise to extreme heights over a long period. As the 'uplift' progresses the surface rocks will be 'weathered' or broken down by the erosive effects of rain, wind, snow and ice.



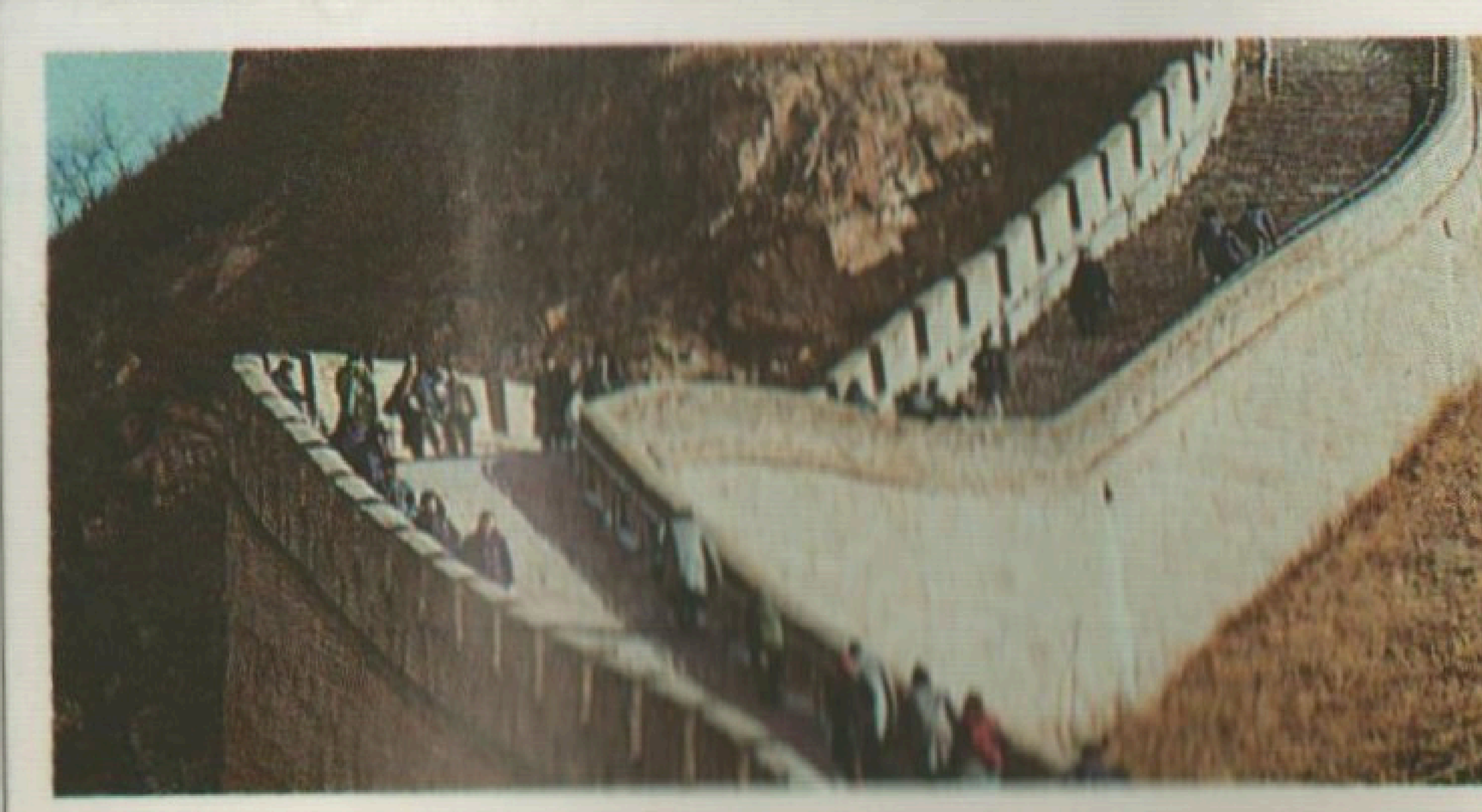


29. The Great Wall of China

The Chinese built this wall around 200 BC to defend their fertile plain from incursions by nomadic Tartars. Land and food were coveted possessions in those days. The Great Wall extends for 2240 kilometres over mountains and rivers, starting at the Gulf of Liaotong then travelling westward to Chiayu. The base of the wall is often as much as 7.5 metres across. Each side is built solidly with stone and brick but the centre is filled with earth and rubble. The concept of using such a wall for defence and the construction of the wall is attributed to Shi Hwang-ti the first of the universal Emperors of the Ts'in dynasty.

28. Angkor – Kampuchea

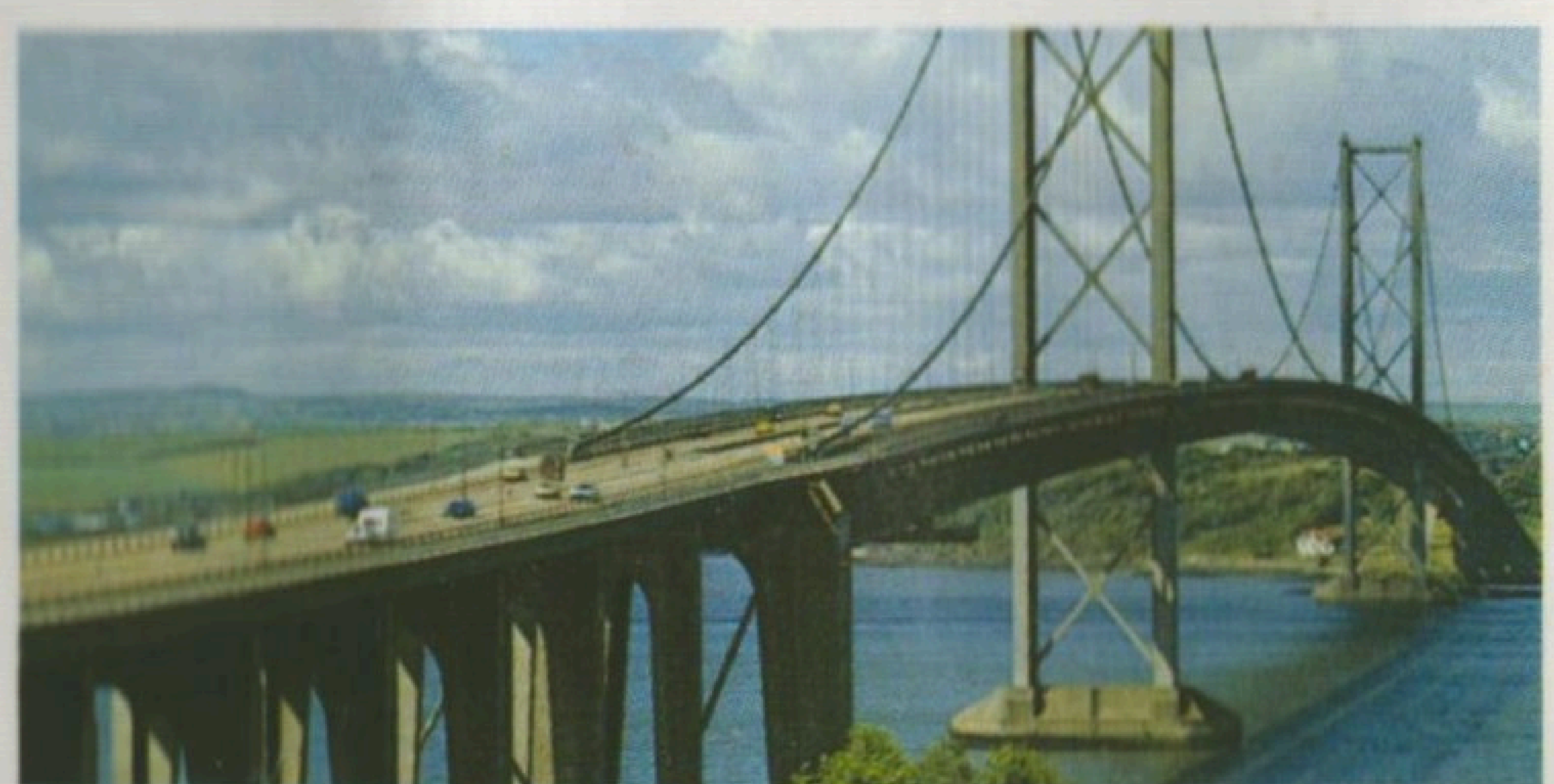
The once famous walled city of Angkor is now only a city of ruins. In the 6th century it was the capital of Then-Ha, a Hindu country which later became Cambodia and is today known as Kampuchea. Covering an area of more than 3 kilometres the ruins of Angkor reveal the architectural inspiration of the Khmer peoples of that time. The Bakong temple, known as the temple-mountain, is a complex of buildings skilfully designed to encompass the many religious mysticisms of the Khmer people. These include the eight forms of the god Shiva; the sun, moon, earth, water, wind, fire, air and atman the breath of life.





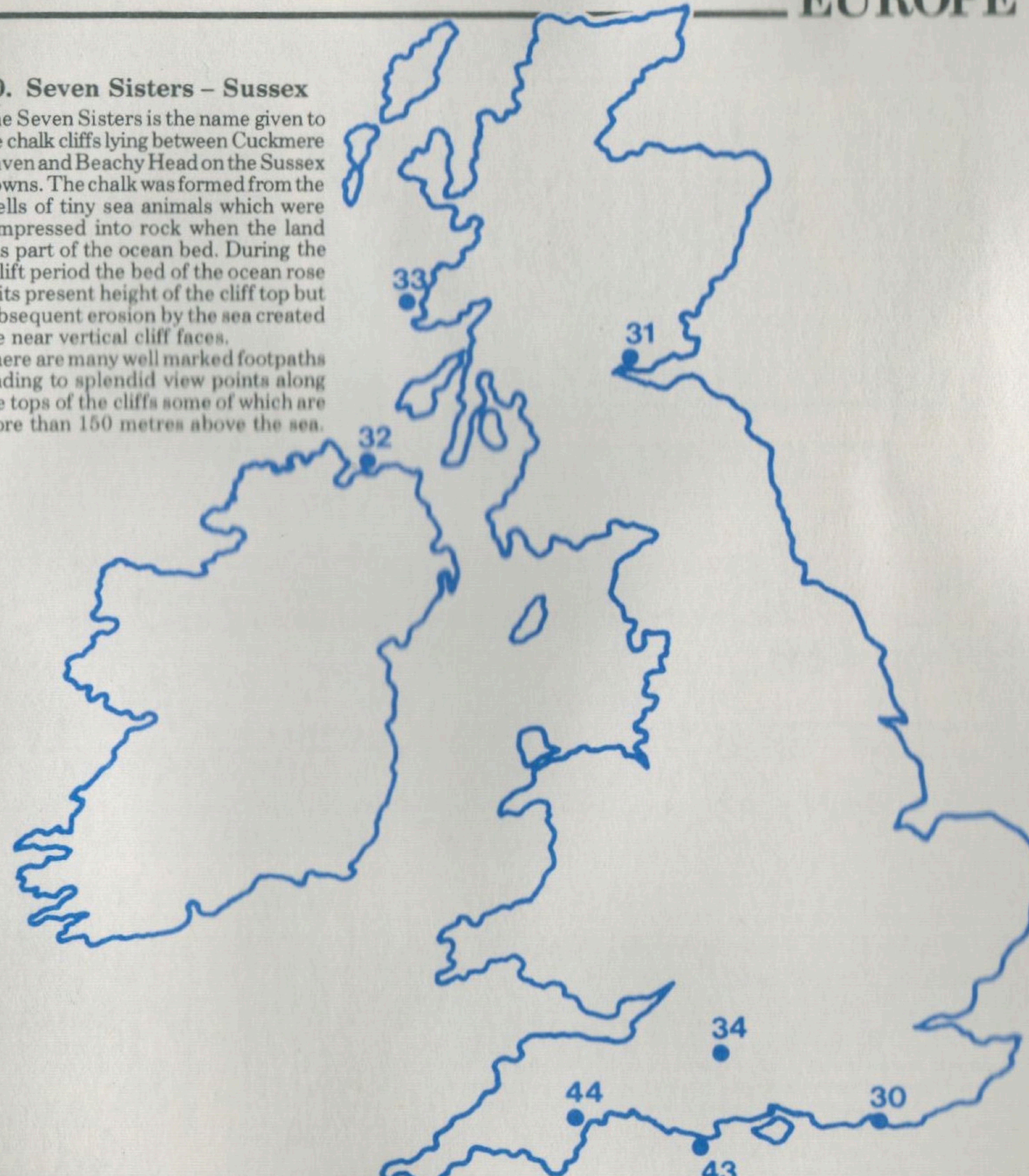
30. Seven Sisters – Sussex

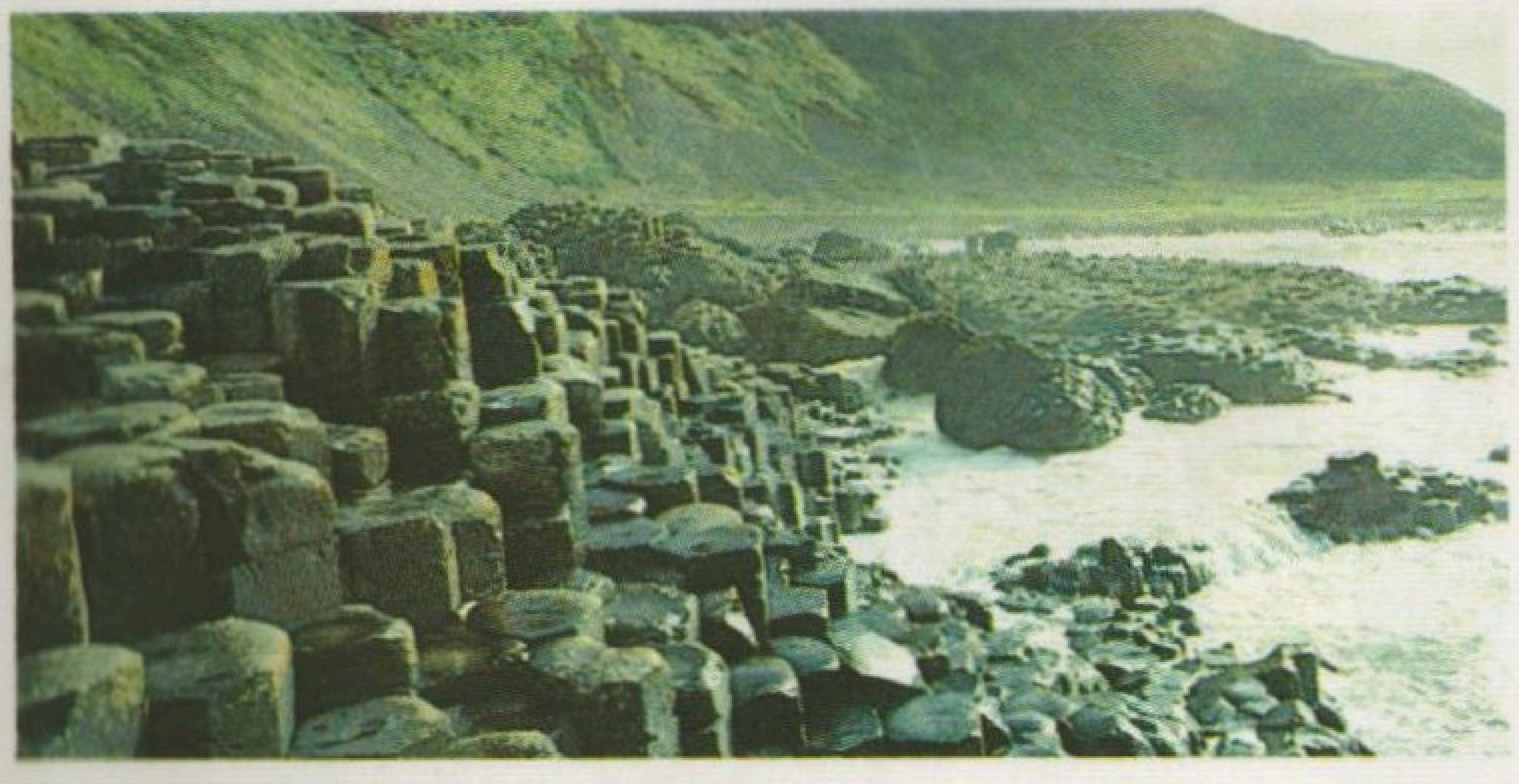
The Seven Sisters is the name given to the chalk cliffs lying between Cuckmere Haven and Beachy Head on the Sussex Downs. The chalk was formed from the shells of tiny sea animals which were compressed into rock when the land was part of the ocean bed. During the uplift period the bed of the ocean rose to its present height of the cliff top but subsequent erosion by the sea created the near vertical cliff faces.
There are many well marked footpaths leading to splendid view points along the tops of the cliffs some of which are more than 150 metres above the sea.



31. F[illegible]spension Bridge – Scotland

At one time [illegible]n's longest suspension bridge the Forth Bridge has a main channel span of 1006 metres. It was completed in 1964 and was surpassed in length by the recently completed Humber Suspension Bridge which has a central span of 1410 metres.
The Forth Bridge which carries road traffic from Edinburgh to the Lowlands of Scotland was preceeded by a river ferry for 800 years. The Royal Burgh of Queensferry, lying at the southern end of the bridge, was so named after Queen Margaret of Scotland who was a regular traveller between Edinburgh and Dunfermline.




32. Giants Causeway – Co. Antrim Northern Ireland

This remarkable landscape of basaltic rock was created by violent eruptions from the earth's crust more than 50 million years ago. It has an estimated 40,000 vertical columns many of which are near perfect hexagons with an average cross-section of 45 centimetres. The molten lava thrown up by volcanic action took a long time to cool and the gradual contraction left a pattern of hexagonal cracks on the surface. As the cooling penetrated through the lava mass the resultant shrinkage followed the surface pattern leaving a network of near vertical basaltic columns.

A promontory can be attacked at its weakest points by the sea which creates caves and arches as seen in the diagram. As the arch is enlarged the crown or top of the arch grows weaker and eventually collapses. The column left standing in the sea is called a 'stack'. Many arches in arid regions are created by the erosive effects of surface water and chemical weathering.



33. Fingals Cave – Isle of Staffa – Scotland.

The formation of basaltic rock at Fingals Cave is a good example of molten magma cooling slowly and splitting into prism shaped columns with long vertical sides. The columns closest to the sea have been reduced to their present sea level height by the relentless pounding of the waves. The roof of the cave is nearly 18 metres above the sea. On occasion one can hear an eerie sound of music which is caused by the seawater surging in and out of the cavern which is 60 metres deep. The Gaelic name of Llaimh Binn means "Cave of Music" and it was this sound which inspired Mendelssohn to compose the Hebrides overture.



34. Stonehenge – Wiltshire

The most famous of the prehistoric monuments in Great Britain, Stonehenge remains a mystery to archaeologists to this day. It is clearly a place of worship and was most probably started by Neolithic people around 1800 BC. The name comes from the old English 'hengen' meaning that which is hung up.

The method by which these massive monoliths, weighing as much as 40 tons, were placed upright and others placed horizontally on top of these uprights is also a mystery. Some of the stones from the Great Circle of these standing stones have been identified as 'spotted dolerite'. This type of stone is found in the Prescelly Mountains in Dyfed from where it must have been transported.





35. Parthenon – Greece

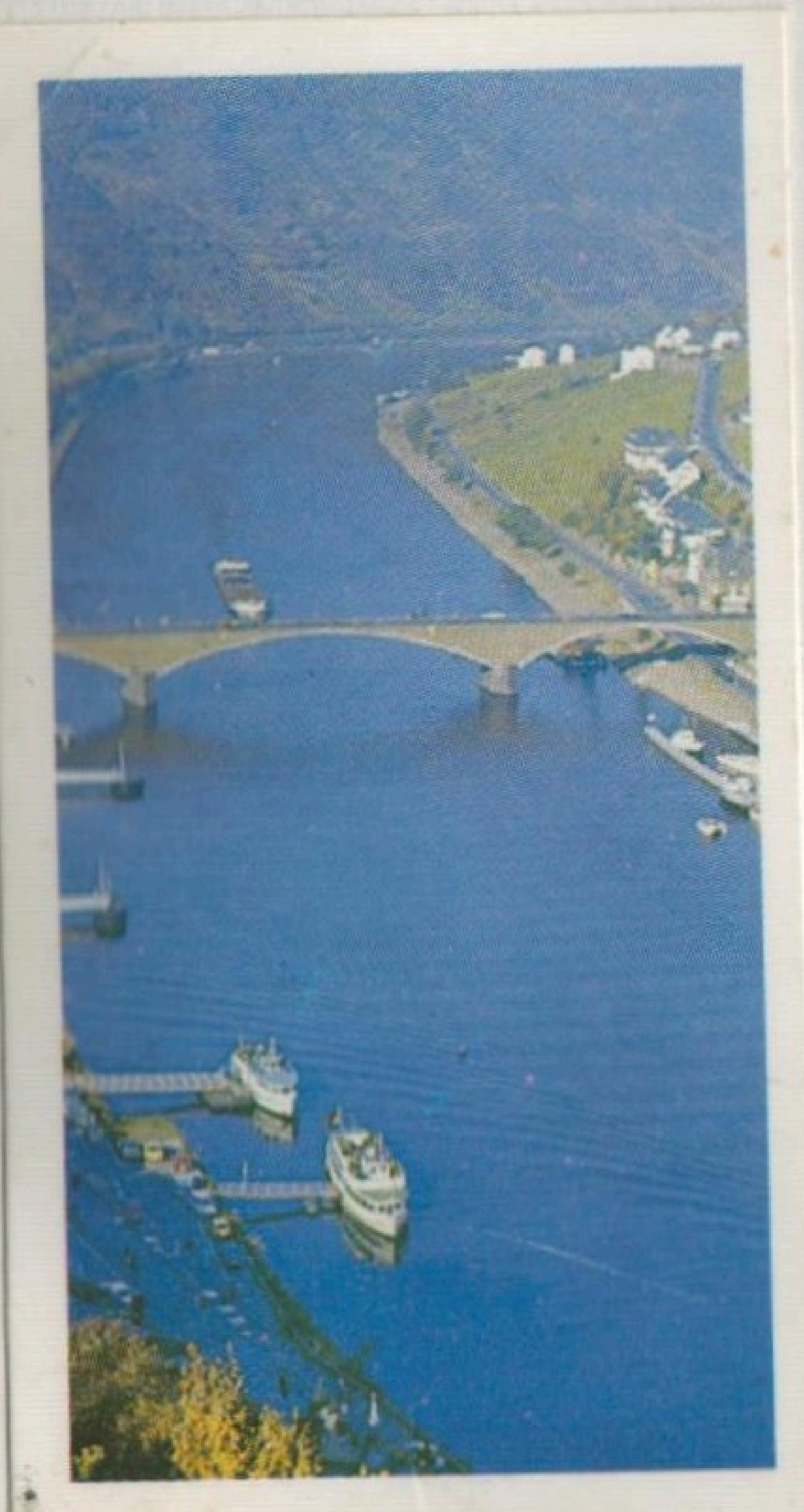
Dedicated to the virgin goddess Athena, The Parthenon is acknowledged as the most splendid of the ancient Greek Doric temples. The architects Callicrates and Ictinus introduced a variety of subtle curves in the columns, for which the temple is so famous.

The overall dimensions are 69 metres long by 30 metres wide by 19.5 metres high. It was built around 440 BC under the supervision of Phidias the sculptor. Portions from the frieze of the Parthenon were brought to this country by the Earl of Elgin in 1812 and form part of the famous collection known as the Elgin Marbles which some people would like to see returned to Greece.



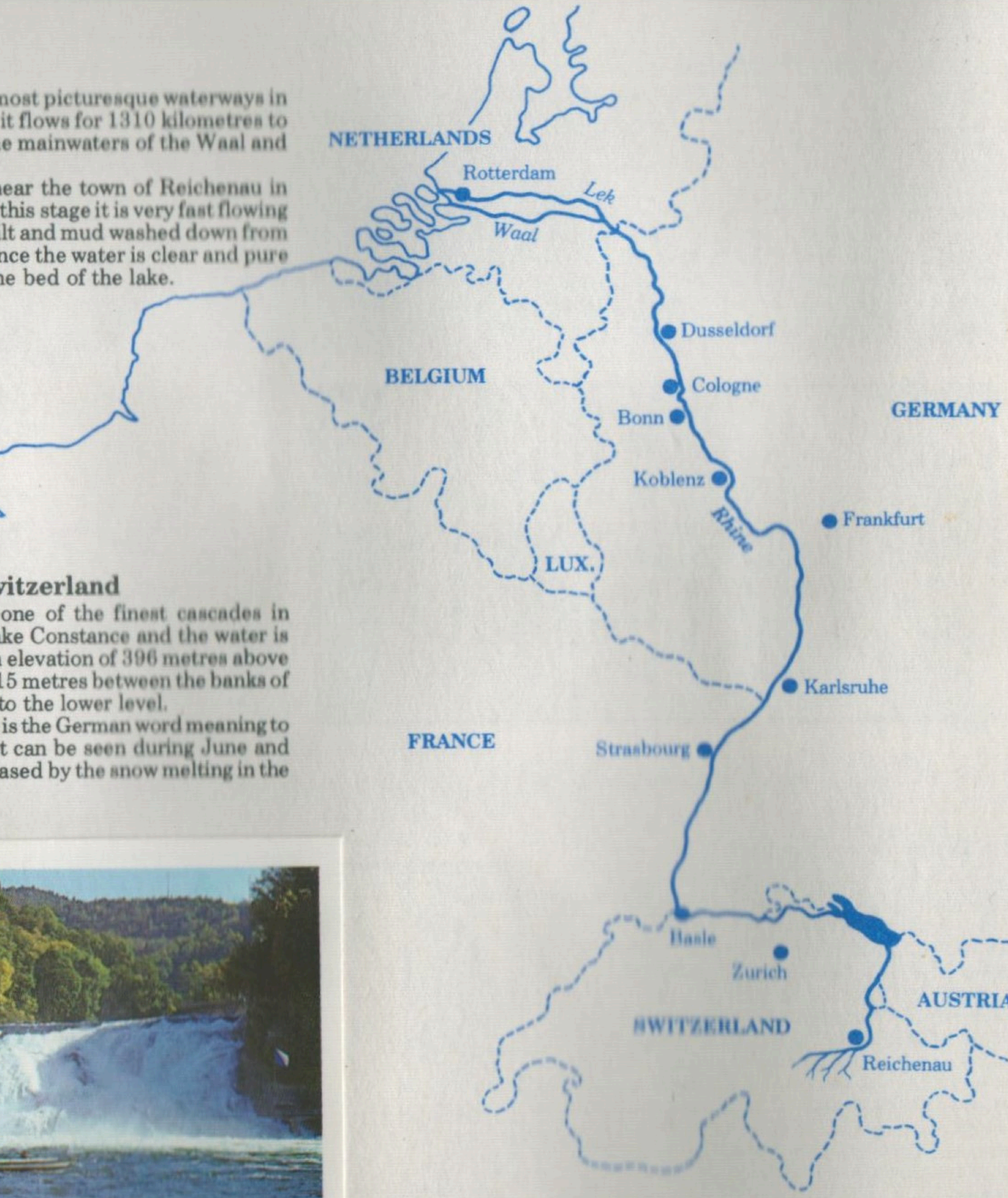
The Elgin Marbles

So named after the seventh earl of Elgin who brought them to England in 1816. This famous collection of Greek sculptures from the Parthenon and other buildings on the Athenian Acropolis were sold to the British Museum for £35,000. The earl of Elgin justified their removal from Athens on the grounds that they would have been destroyed by the Turkish artillery had they not been removed.



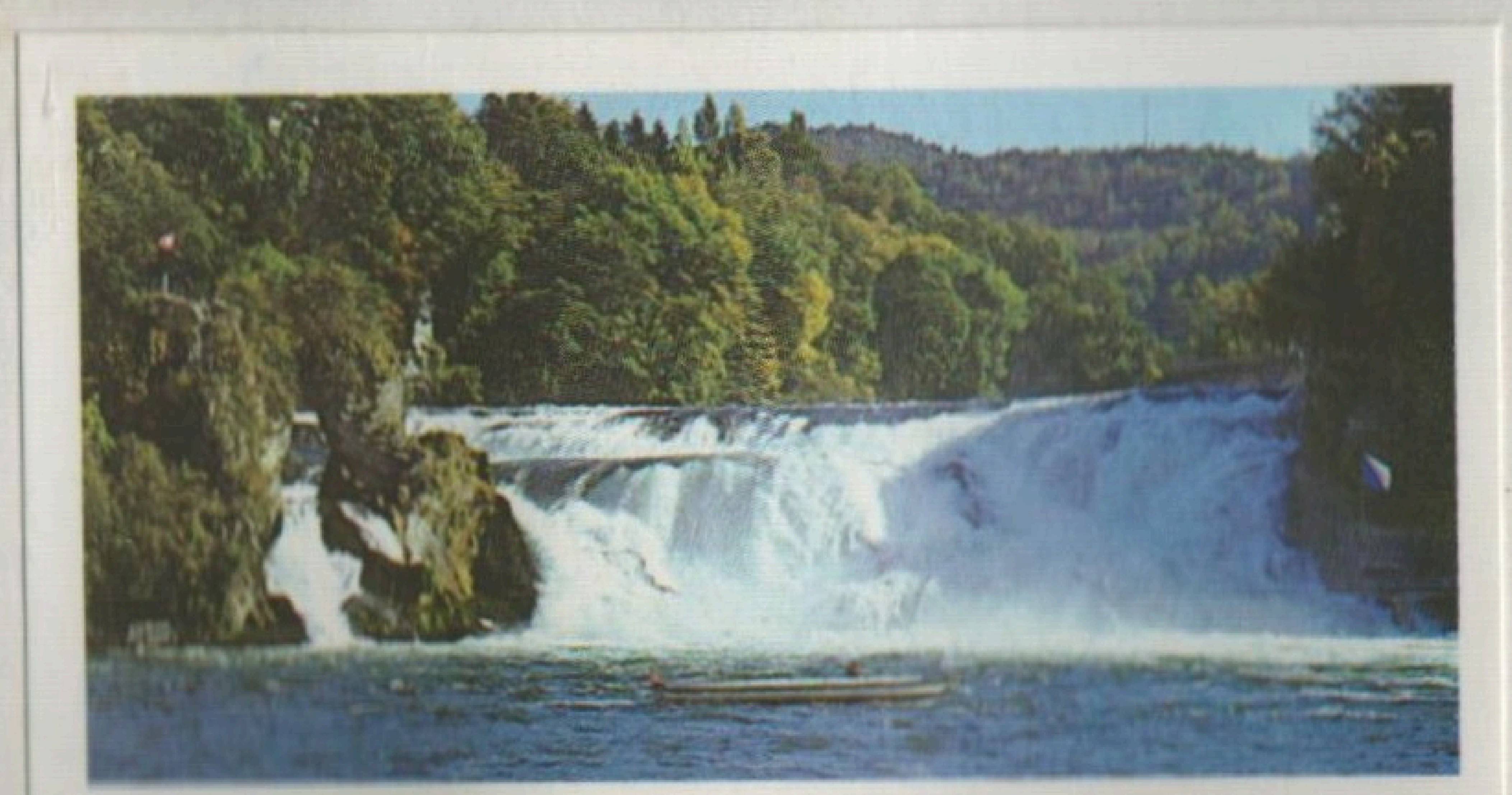
36. The River Rhine

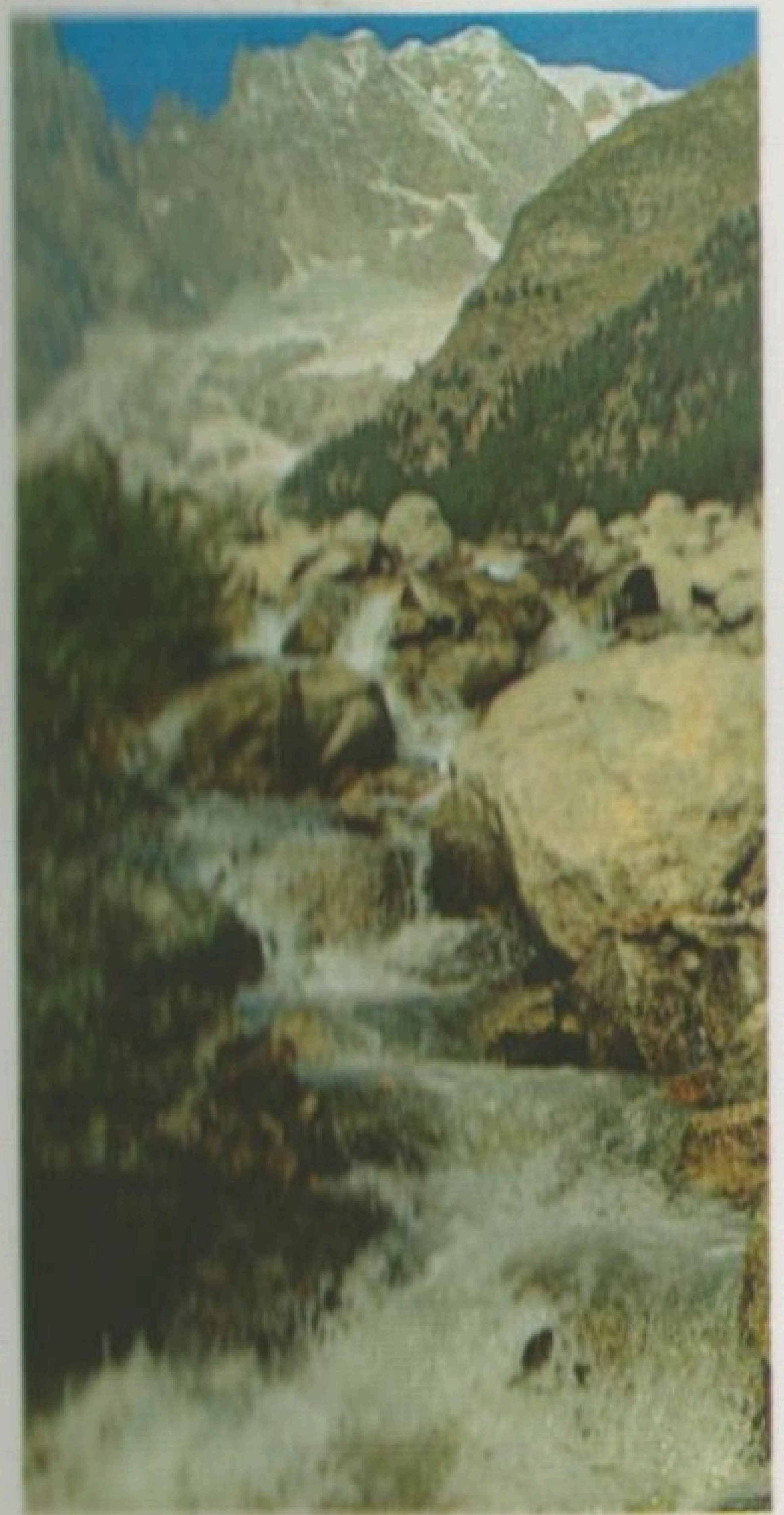
The Rhine is the busiest and one of the most picturesque waterways in the world. Rising high in the Swiss Alps it flows for 1310 kilometres to the Netherlands where it divides into the mainwaters of the Waal and the Lek.
Mountain glacial waters join together near the town of Reichenau in Switzerland to form the River Rhine. At this stage it is very fast flowing and the turbulent water carries a lot of silt and mud washed down from the mountains. On leaving Lake Constance the water is clear and pure having deposited the silt and mud on the bed of the lake.



37. The Rhine Waterfalls – Switzerland

The Rhine falls near Schaffhausen is one of the finest cascades in Europe. It is fed by the outflow from Lake Constance and the water is sparklingly clear and free from silt. At an elevation of 396 metres above sea level the head of the falls measures 115 metres between the banks of the river which drops nearly 30 metres to the lower level.
It is known locally as the *LAUFEN* which is the German word meaning to flow or to run. The most dramatic effect can be seen during June and July when the rate of flow is greatly increased by the snow melting in the Swiss Alps.

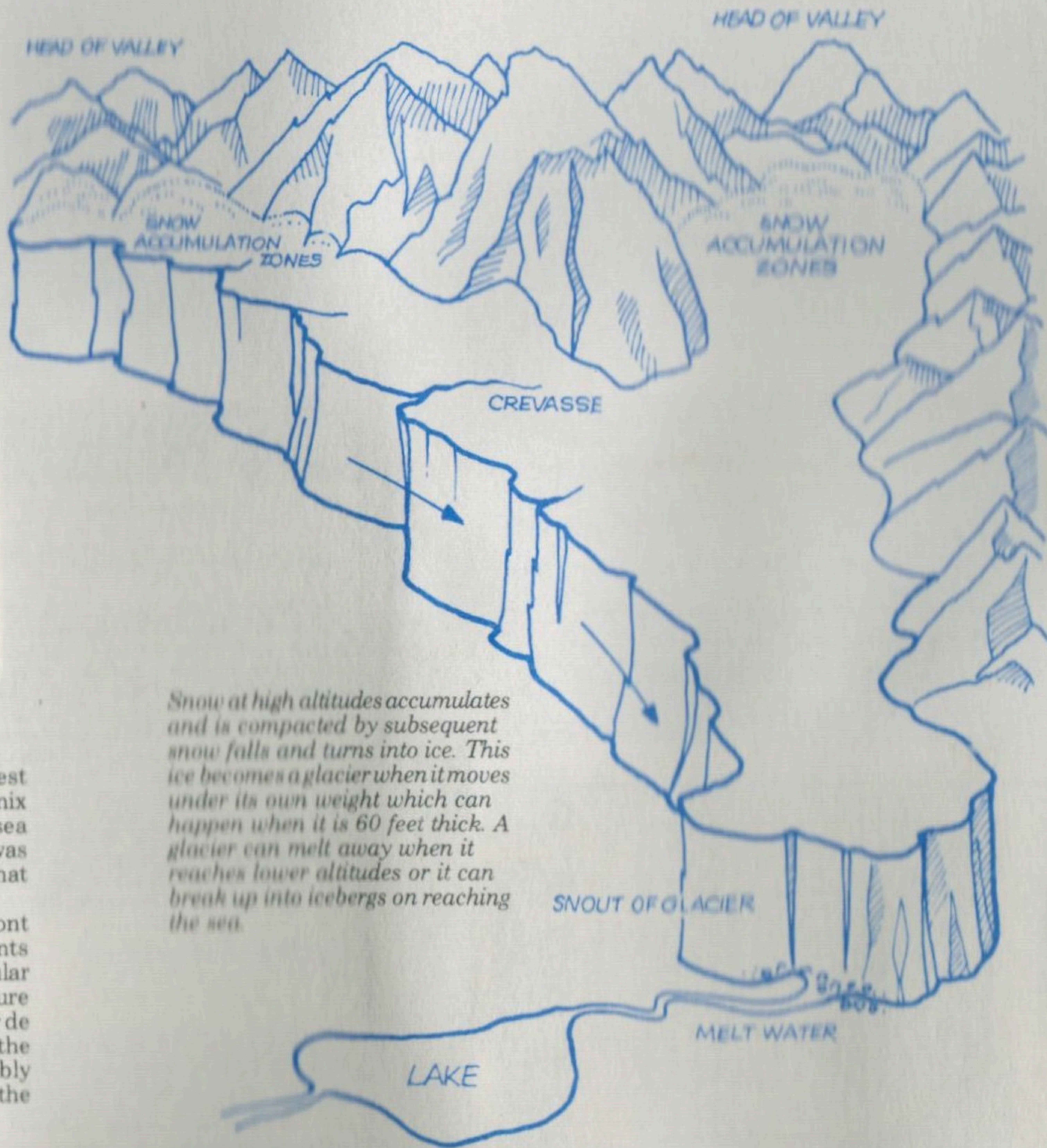




38. Mont Blanc – French/ Italian Border

Mont Blanc the White Mountain is the highest peak of the Alps. Towering over the Chamonix valley the summit is 4807 metres above sea level. Its dome-like mass of granite was shaped long ago by the relentless glaciers that once covered the Alpine massif.

The present day glaciers on and around Mont Blanc are small by comparison with the giants of the ice-age but they still provide spectacular scenes of the powerful forces which nature can provide. The largest of them is the Mer de Glace (Sea of Ice), on the French side of the mountain, which moves slowly but inexorably downward until its meltwaters flow into the River Arve.

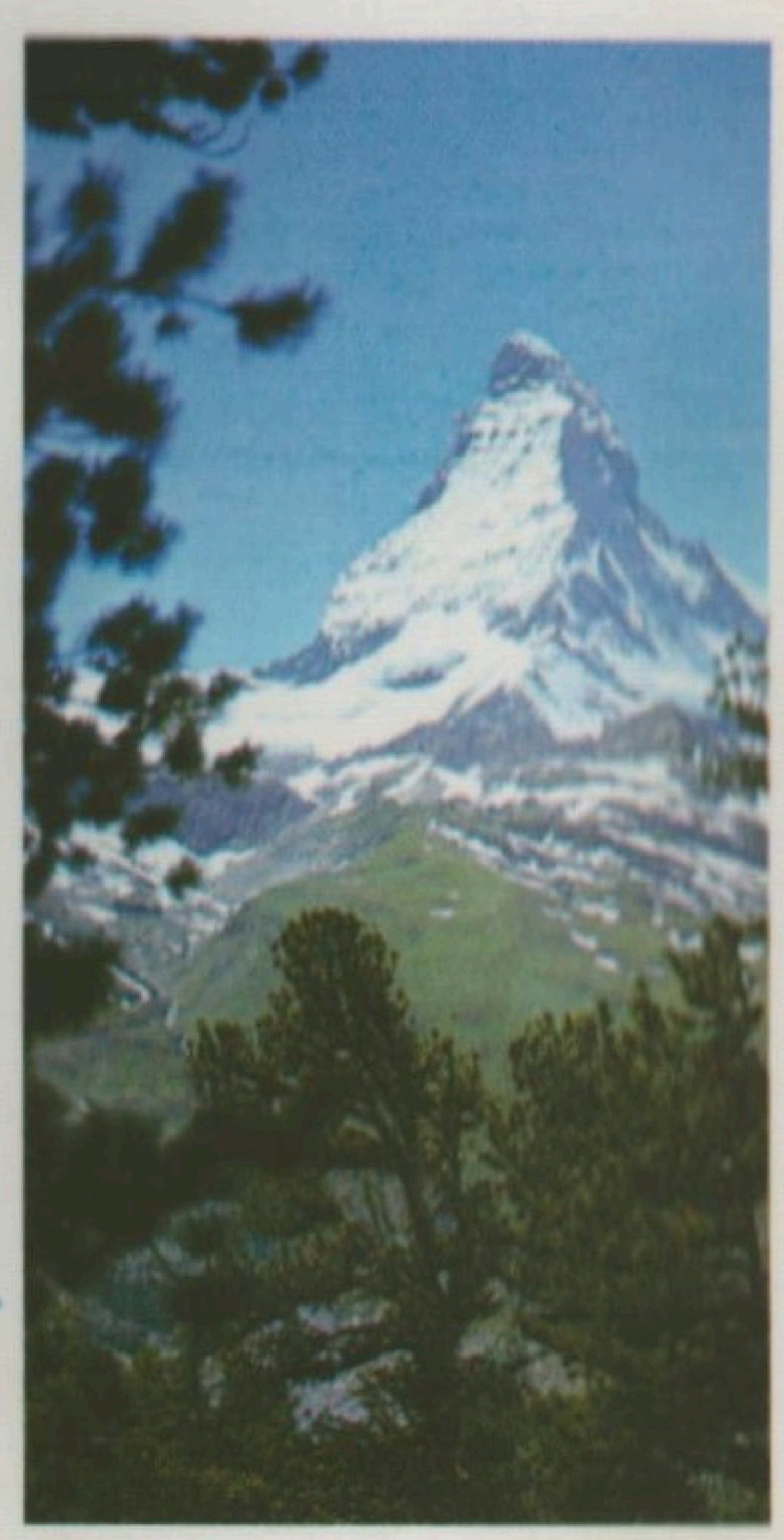


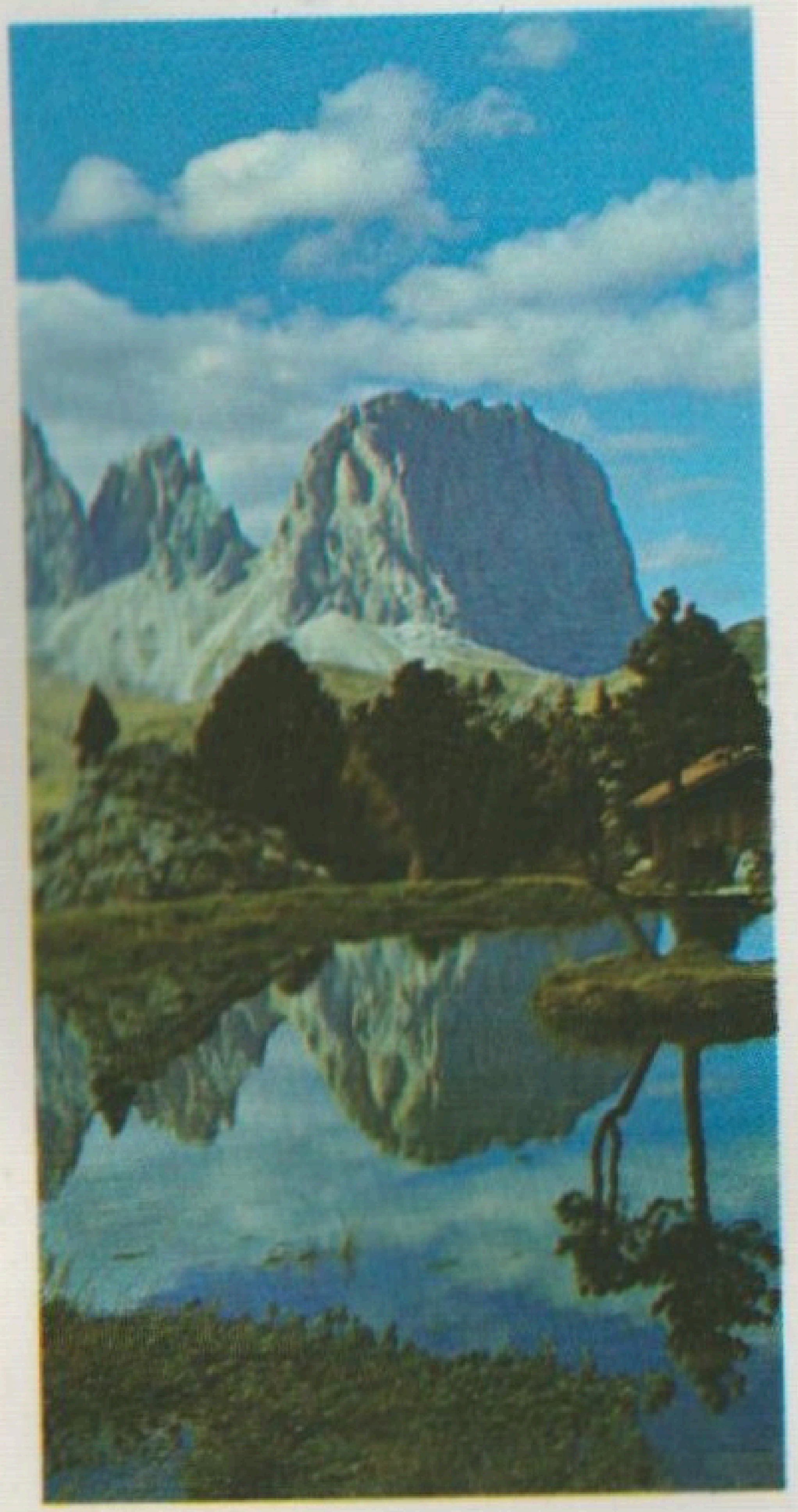
Snow at high altitudes accumulates and is compacted by subsequent snow falls and turns into ice. This ice becomes a glacier when it moves under its own weight which can happen when it is 60 feet thick. A glacier can melt away when it reaches lower altitudes or it can break up into icebergs on reaching the sea.

39. The Matterhorn – Switzerland

First conquered by the British mountaineer Edward Whymper in July 1865, this famous mountain came to life over 40 million years ago. Although only 4478 metres above sea level the Matterhorn, or Mont Cervin as it is known to the French, is one of the worlds best known peaks because of its unusual symmetry.

It has four quite unique triangular sides which were shaped by the powerful glaciers of some two million years ago. With the passing of the ice-age the Matterhorn was formed into the steep sided, soaring pyramidical shape that remained a challenge for so long to the most experienced climbers during the 19th century. Four of the seven-man team which was the first to reach the summit in 1865 were tragically killed through a broken rope during the descent.





40. The Dolomites – Italy

Unlike most of the European mountain ranges the Dolomites are jagged massifs with near vertical faces rising 1000 metres or more above the undulating meadows and valleys of the South Tyrolean Alps. The incredibly sheer faces provide an horizon of silhouettes which resemble spires, needles and castle battlements.

The highest peak is Mount Marmalada, 3343 metres above sea level. The Dolomite range was once a coral reef lying in ancient shallow seas. The reef was forced upwards millions of years ago when the Alps were formed but the hard magnesian limestone which formed the Dolomites resisted the weathering effects which have created the more usual evenly sloped mountain ranges.

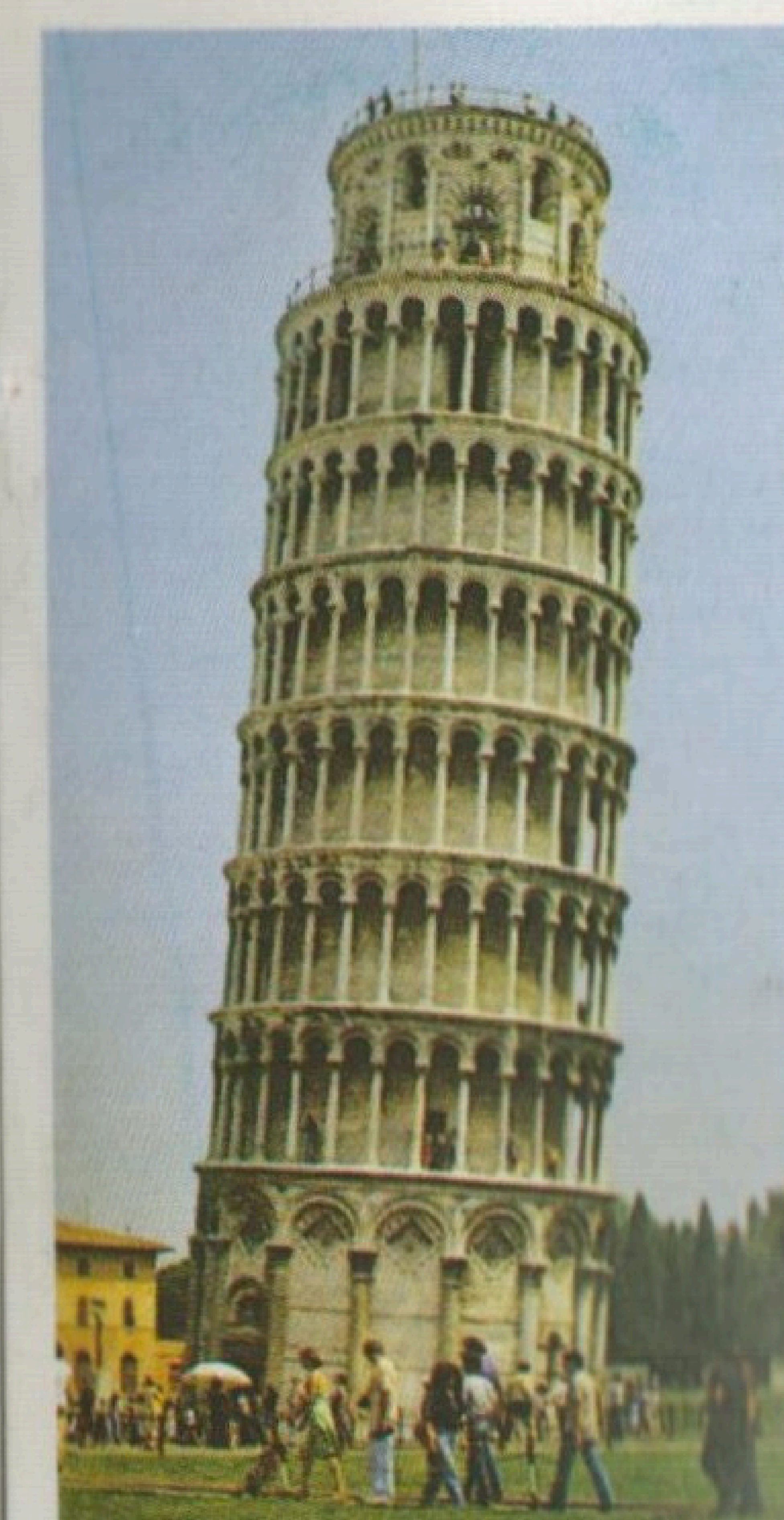
41. Venice (or The Sinking City)

The City of Venice was built on an area of mud-flats which was once a Lagoon separated from the sea by low sandbanks. Wholesale settlement began around 810 AD when dykes were constructed to confine the periodic floods. The water level is now rising and a number of inhabitants have left because their buildings were prone to flooding. Measurements have shown that the land is sinking by as much as 7 millimetres in one year. The Italian Government has a number of plans to prevent further flooding. These include special barriers such as those recently built in the River Thames to protect London during periods of unusually high tides.





The Colosseum in Rome



42. The Leaning Tower of Pisa – Italy

The round Campanile or bell tower, completed in 1350, is better known as the Leaning Tower because it is inclined almost 5 degrees from the vertical. The tower, which took more than 126 years to complete, was built up in eight storeys to a total height of 55 metres.

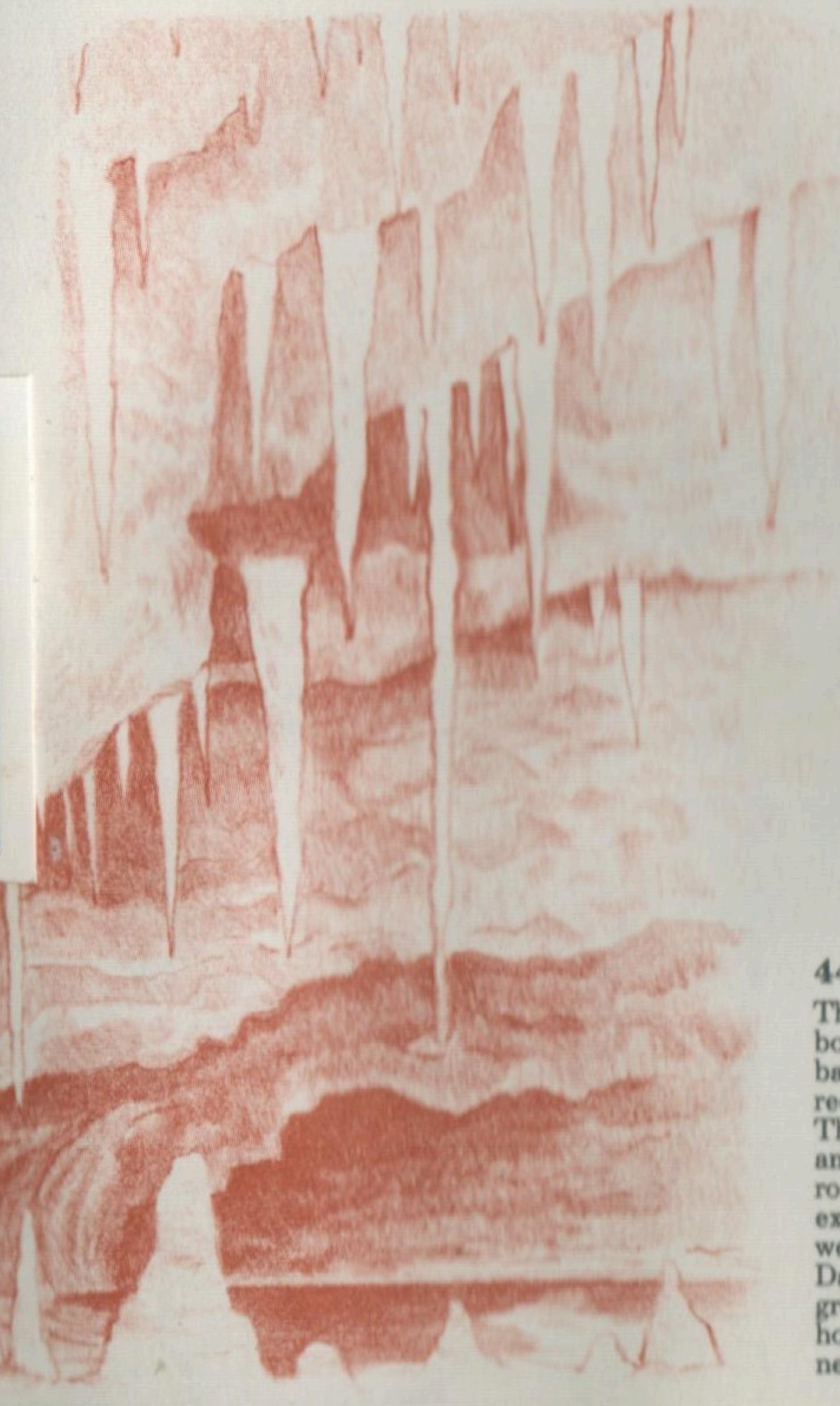
It contains 7 bells the heaviest of which weighs 6 tons. Galileo used the tower for his experiments regarding the laws of gravity. It is generally understood that the foundation of the south side subsided when the tower reached the third storey and that a deliberate inclination was introduced at that level.

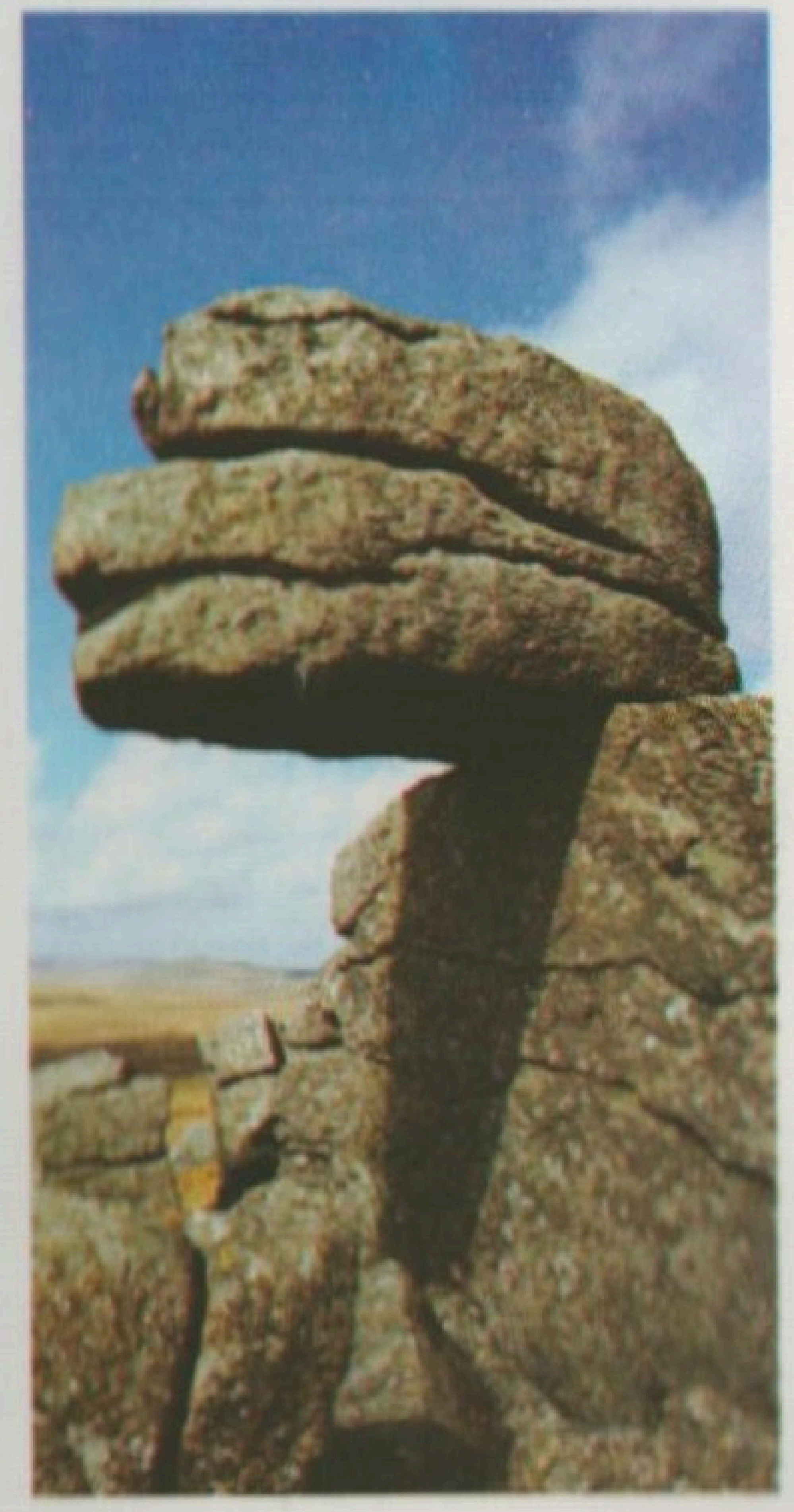
43. Durdle Dor – Dorset

Sometimes referred to as the *Barn Door,* the Durdle Dor is a 9 metre high archway which has been carved out of the limestone by the battering and pounding of the sea. It lies to the west of Lulworth Cove where the chalk cliffs end quite abruptly and are replaced by Portland stone and Purbeck stone.

It has been the home of the Auk, Puffin, Shag and various gulls which like fish laden waters and coastal rocky inlets. The best time for viewing is when the seas are running high and the giant waves come crashing through the Durdle. The most picturesque approach is along the beach of Man o' War bay.





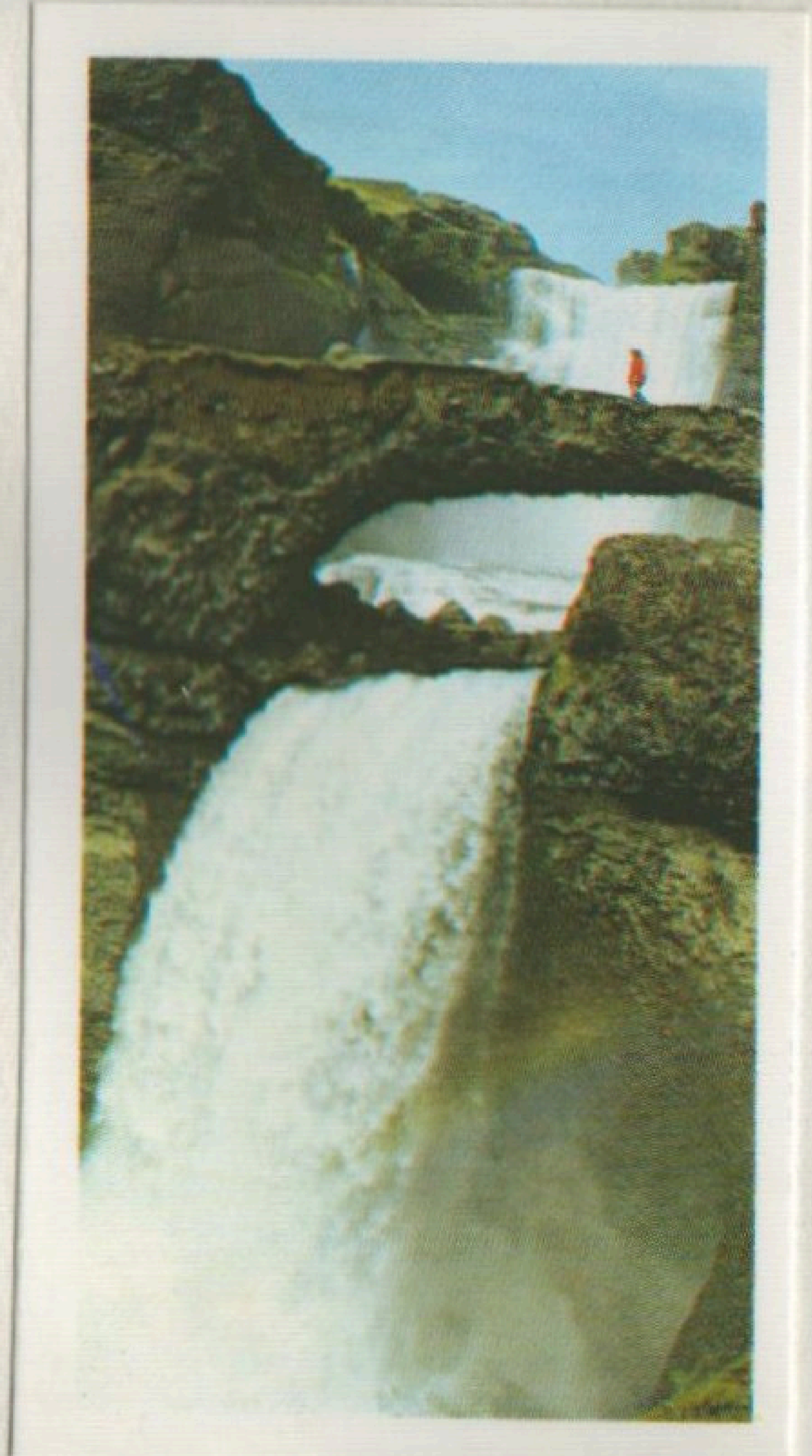


44. Logan Stone – Dartmoor

The Logan Stone at Rippon Tor is a large granite boulder which is delicately balanced on a granite base. It can be rocked gently by hand but would require a much more powerful force to displace it. This apparent freak of nature is a common sight amongst the Tors (Gaelic name for a pile of large rocks) of Devon and Cornwall. They are excellent examples of unusual sculpture caused by differential weathering over a long period of time.

Dartmoor, which is well known for its Tors, was the great source of granite for many of the early churches, houses, burial chambers, bridges and many other needs.

Fine examples of stalagmites and stalactites are found in the natural caves of the Mendip Hills. Traces of limestone deposited by dripping water have, over the centuries, built up these often spectacular columns.

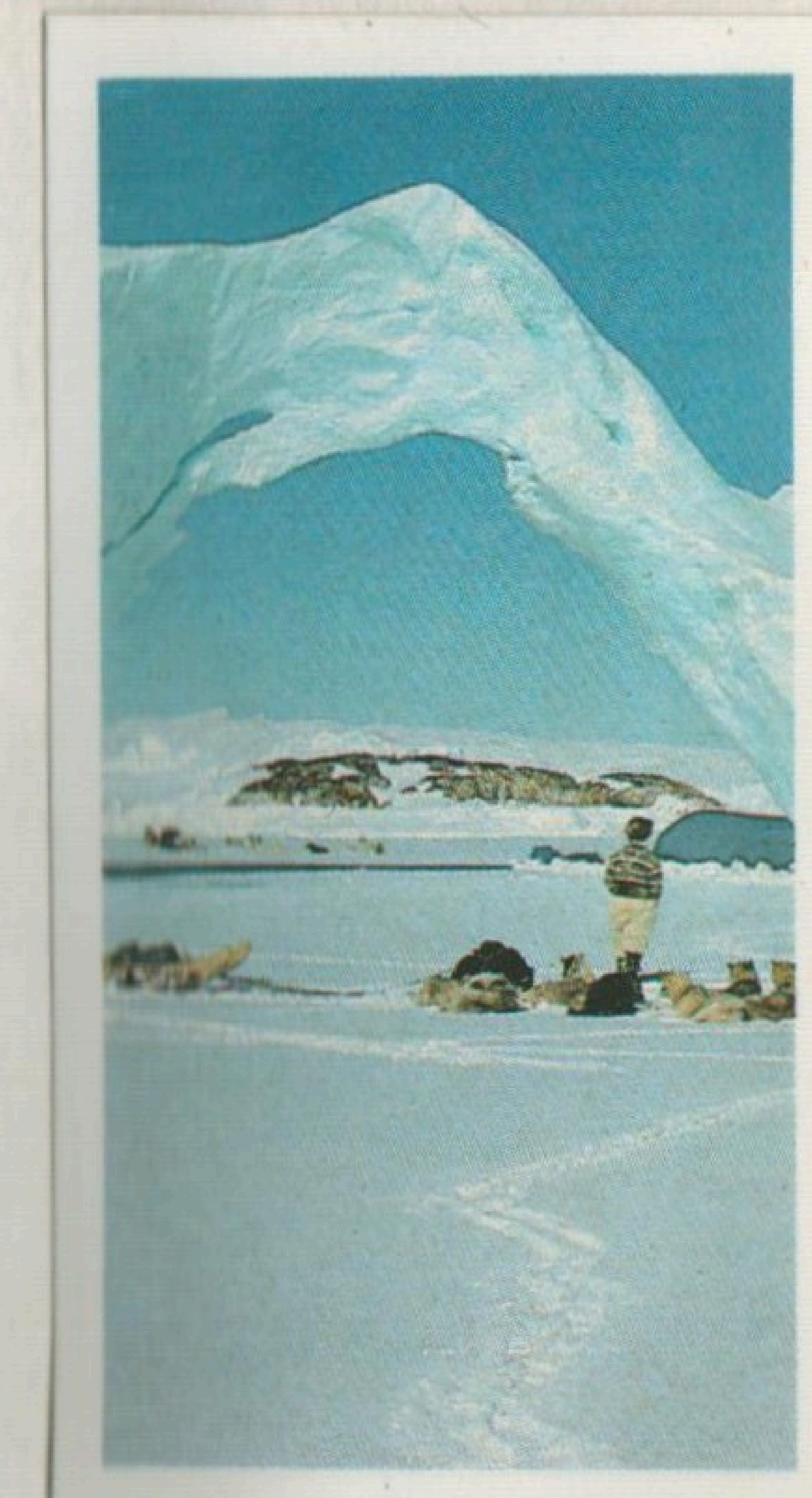






The Aurora Borealis

A phenomenon of light, often very beautiful, seen in high latitudes. It is seen in many shapes and colours from arcs to coronas and from greys to brilliant reds. The Aurora is due to electro-magnetic emissions from the sun usually associated with high sun spot activity.



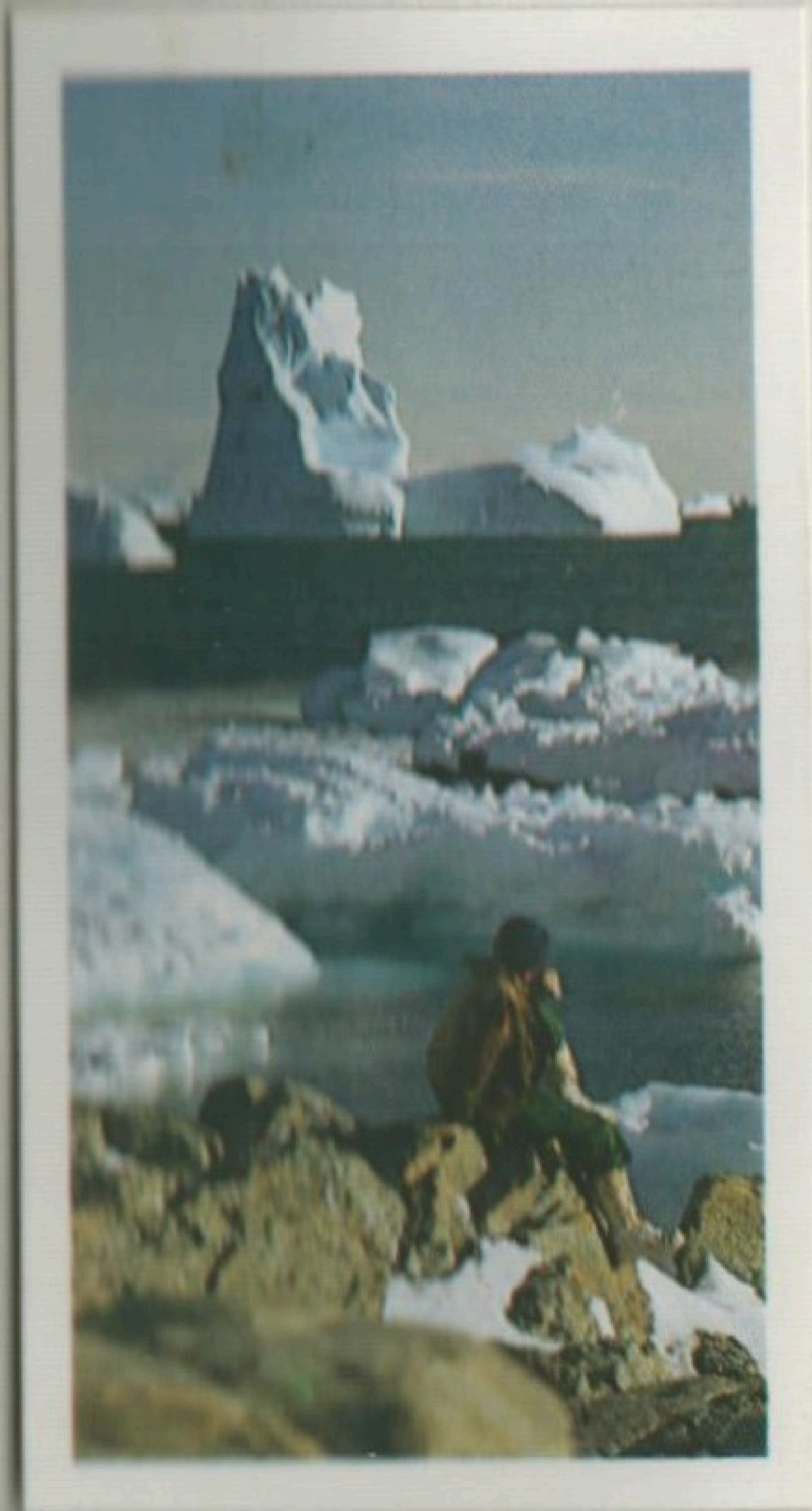
45. Ofaerufoss Eldgja – Iceland

The Icelandic name for this incredible waterfall is a clue to the intense volcanic activity of Iceland. 'Ofaeru' is a lava field, 'Eldgja' is a fissure in the lava and 'Foss' is a waterfall. The Ofaerufoss lies next to the Myrdalsjokull a large icecap which sits on top of an active volcanic region whose heat continuously melts the underside of the ice.

Often described as the Island of Fire, Iceland contains more than 200 post-glacial volcanoes of which 30 have been active during the past 1000 years. It also contains some of the largest glaciers to be found in Europe. The largest icecap, the Vatnajokull, covers an area of 8,400 square kilometres and reaches a thickness of 1000 metres.

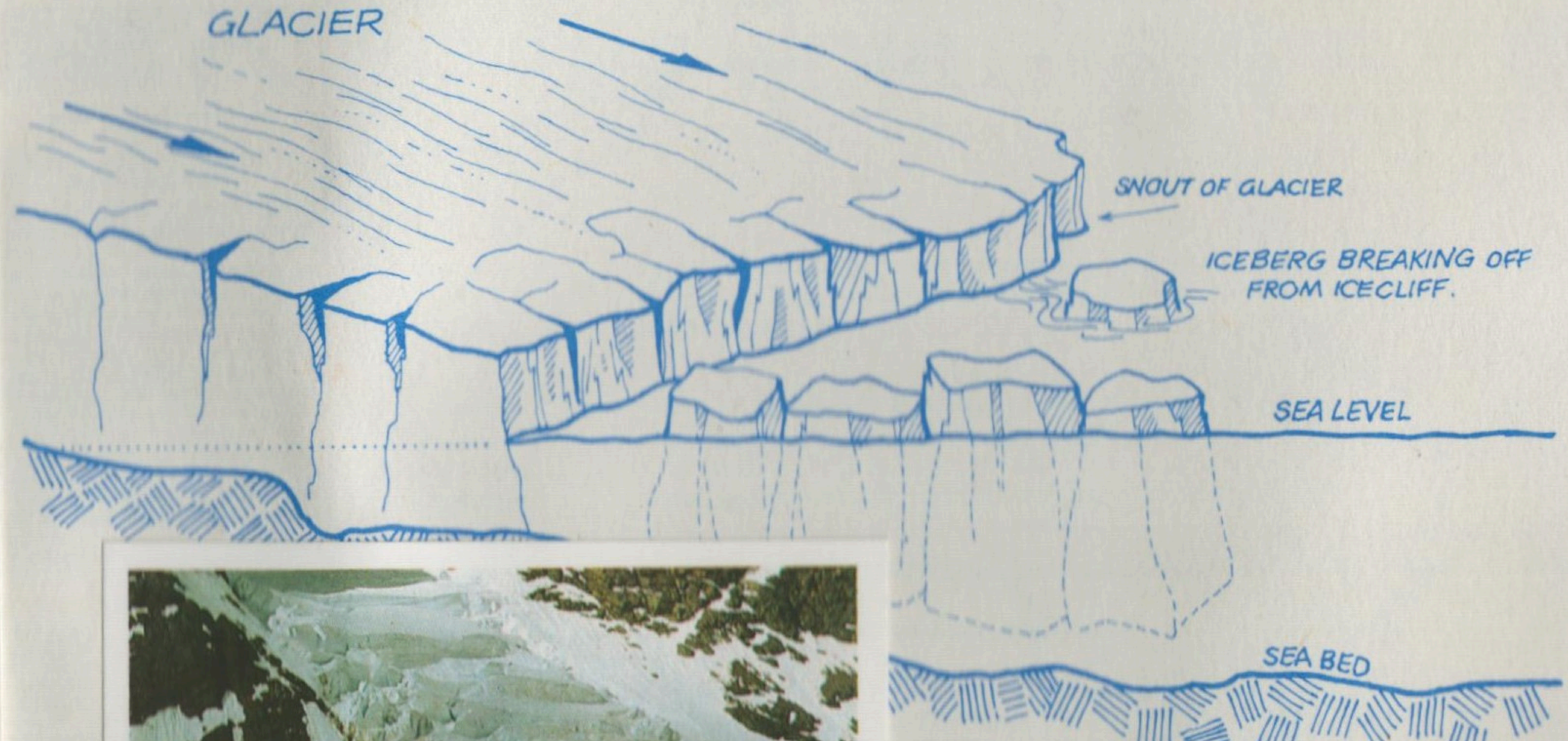
46. An Old Iceberg – Greenland

This ageing iceberg was photographed off the east coast of Greenland close to the Arctic Circle. Almost eaten away by the pounding of the waves, it will eventually disintegrate from the destructive forces of sun, sea and wind. It will lose its equilibrium; flip upside down, break into smaller icebergs and melt away. It could also shatter spontaneously into smaller pieces. Most icebergs disappear after two years. Very few last for more than ten. Some reach the North Atlantic where they can be a hazard to shipping. In 1912 the latest ocean going liner, the 46,000 ton Titanic, sank off Newfoundland after colliding with an iceberg.



47. Icebergs Floating Offshore – Greenland

Icebergs can best be defined as blocks of frozen fresh water adrift at sea. Nearly 90% of their mass is submerged hence the saying 'the tip of the iceberg'. Those in this picture come from the Greenland glaciers which are the source of the estimated 20,000 icebergs permanently surrounding the islands coasts.
More than 85% of Greenland is covered with an ice sheet which in places is 2000 metres thick. There are approximately 1,700,000 square kilometres of icecap and 75,500 square kilometres of glaciers. The famous Jakobshavn Glacier discharges between 20 to 30 million tons of ice, in the form of icebergs, almost every day during the summer months.



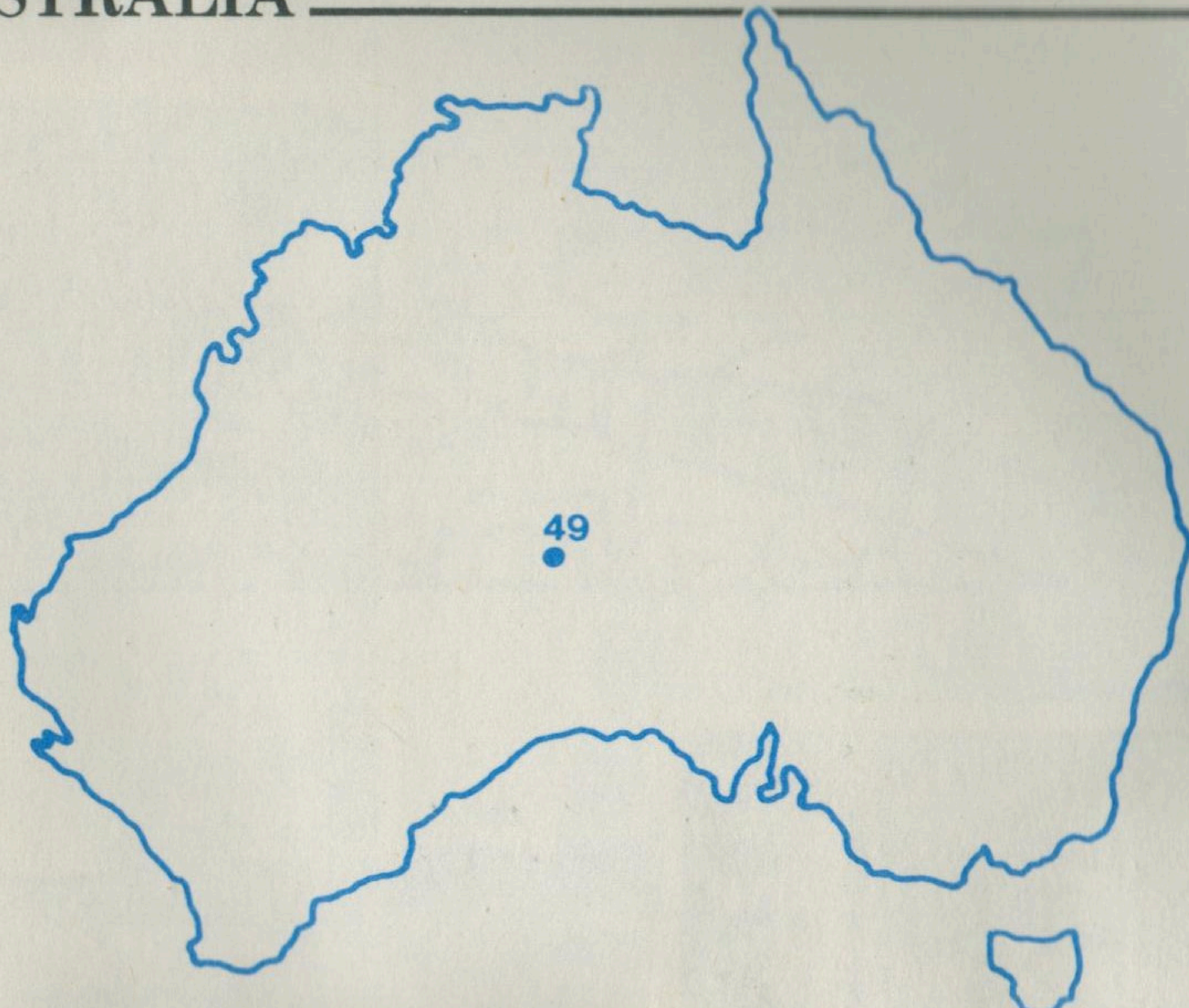
Icebergs are 'calved' when they break off from the cliffs of an ice sheet or from a glacier. Once in the water the greater part of their mass is submerged. The largest recorded iceberg was seen in the Antarctic in 1956. It was 12,000 square miles. Imagine a 60 mile wide iceberg stretching from London to Plymouth or from Glasgow to Sheffield.



48. Antarctic Glacier

Glaciers are rivers of ice formed from vast icecaps in high mountainous areas. Huge amounts of snow fall in areas where the temperature is always below freezing point. Pressure from the enormous weight of the ice forces it to flow outwards to the sea sometimes as valley glaciers. The worlds greatest glaciers are in the Antarctic. The longest is the Lambert Glacier which in places is 64 kilometres wide and is some 400 kilometres long. If all the Antarctic ice melted the sea level all over the world would rise by about 45 metres. The ice represents nearly 90% of the world's freshwater.

AUSTRALIA



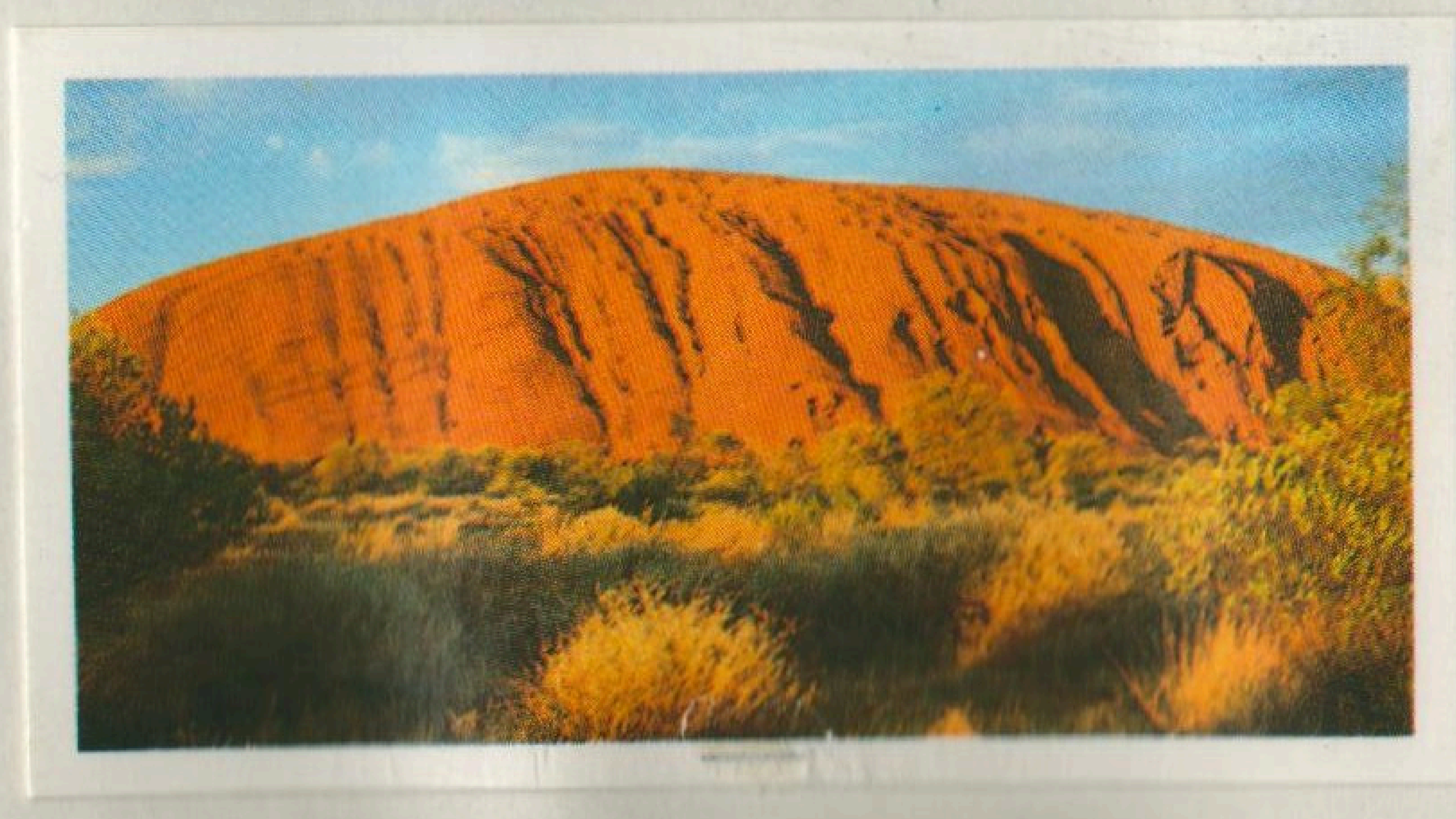


50. Rotorua Pohutu Geyser – New Zealand

Rotorua is the centre of New Zealand's spectacular thermal region situated in the central area of North Island. This is a volcanic plateau which abounds in geysers, hot springs, and pools of boiling mud. Many of these have been harnessed for the provision of therapeutic treatment of people suffering from arthritis, skin complaints and other body ailments.

The Maoris who had settled in the area long before the Island was visited by Europeans, still use the rising hot water for heating, cooking and washing as their forefathers had done. They are descended from the Polynesians who first settled around Lake Rotorua in the 14th century.





49. Ayers Rock – Australia

This is one of the worlds largest monoliths measuring 10 kilometres in circumference and 335 metres high. It is a conglomerate of granite pebbles cemented by finer sands. Located almost at the centre of the vast Australian continent, it was at one time the religious shrine of the *Pitjantjatjara.* To them it was known as *Oolra,* the great rock of religious magical importance. Rising up from the mulga (acacia) covered plain its mineral content of feldspar gives it an overall pinky red colour which can change quite dramatically during the day. The surface of the rock is heavily scarred with vertical furrows and there are numerous rock holes which retain water.

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Put your answers on the enclosed answer sheet or on a postcard (in BLOCK CAPITALS please) and post to: **Dept 288, 22/24 Clarke Rd, Mount Farm, Milton Keynes MK1 1HQ.**

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- Closing date for entries – February 28th 1985
- All winners will be advised six weeks after closing date.
- Not open to employees of Brooke Bond Oxo or their families.
- No correspondence will be entered into.
- Send SAE for all rules.

1. 'Uolra' was the name given by the Aborigines to a great rock of religious significance. What is it called today and where is it?
2. What is the name of the mountain which the Swahili people call "The mountain that glitters"?
3. The Mesa Verde Ruins can be found in Colorado. What does Mesa Verde mean?
4. Between which two North American lakes will you find the Niagara Falls?
5. Are the Aberdare Mountains in Tanzania or in Kenya?
6. The ancient Greeks, in the 2nd Century BC listed Seven Wonders of the World. Which is the only wonder which still survives?
7. Where in Africa could you get all the washing soda you wanted by scooping it up from the ground?
8. Which famous waterfalls separate Argentine from Brazil?
9. The Bryce Canyon in Utah is getting bigger each year. How far will the rim of the Canyon have moved by the year 2000?
10. How many hot springs and geysers are there in the Yellowstone National Park?
11. Which is the longest mountain range in the world?
12. Where would you find the Gunug Mulu caves?
13. Who were the first men ever to set foot on the top of Mount Everest?
14. Is it true or false to say that Mount Fujiyama in Japan is higher than Mount Marmalade in Italy?
15. Where could you find nearly 40,000 vertical columns many of which are near perfect hexagons?
16. Which river rises in the Swiss Mountains and flows out to sea through the Lek and the Waal in the Netherlands?
17. Where would you find Seven Sisters made of chalk?
18. Where did Galileo undertake his experiments concerned with the Laws of Gravity?
19. Which is the longest Glacier in the world?
20. What inspired Mendelssohn to compose the "Hebrides Overture"?

Complete the sentence below in less than 15 words.

I would like to visit .... because ....

FEATURES OF THE WORLD



PG tips

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